DOCUMENT RESUME

ED 349 369 UD 028 864

AUTHOR Kaufman, Phillip; And Others
TITLE Characteristics of At-Risk Students in NELS:88. National Education Longitudinal Study of 1988. Contractor Report.
INSTITUTION MPR Associates, Berkeley, CA.
SPONS AGENCY National Center for Education Statistics (ED), Washington, DC.
REPORT NO ISBN-0-16-038011-1; NCES-92-042
PUB DATE Aug 92
NOTE 107p.
AVAILABLE FROM U.S. Government Printing Office, Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328.
PUB TYPE Statistical Data (110) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Academic Failure; American Indians; Black Students; Demography; Family Characteristics; Grade 8; *High Risk Students; Hispanic Americans; Junior High Schools; *Mathematics Achievement; Parent Participation; *Potential Dropouts; *Reading Achievement; *Secondary School Students; *Student Characteristics; White Students
IDENTIFIERS *National Education Longitudinal Study 1988

ABSTRACT

The study described in this report examined the characteristics of eighth-grade students who were at risk of school failure. The study used data from the National Education Longitudinal Study of 1988, which is a large-scale, national longitudinal study begun in the spring of 1988 when 25,000 eighth graders attending public and private schools across the nation were surveyed along with the students' parents, teachers, and school principals. The students were re-surveyed in 1990, and the base year and follow-up data of NELS:88 taken together provide a wealth of information about eighth graders' as they move in and out of the U.S. school system and into the varied activities of early adolescence. This study, focused on at-risk students within the eighth grade cohort, examined the following sets of variables: (1) basic demographic characteristics; (2) family and personal background characteristics; (3) the amount of parental involvement in the student's education; (4) the students' academic history; (5) student behavioral factors; (6) teacher perceptions of the students; and (7) characteristics of the students' schools. Black, Hispanic American, and Native American students and students from low-socioeconomic backgrounds were more likely to be at-risk. Male eighth graders were more likely to have low basic skills, but were no more likely to drop out. After controlling for sex and socioeconomic status, Black and Hispanic American dropout rates were found to be the same as that for Whites. However, even when controlling for sex and economic status, Black and Hispanic American students were more likely than White students to perform below basic proficiency levels. Included are 15 tables in the text and 31 tables in 2 appendixes. (JB)

NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report

August 1992

National Education Longitudinal Study of 1988

Characteristics of At-Risk Students in NELS:88

Contractor Report

Phillip Kaufman
Denise Bradby
MPR Associates, Inc.
1995 University Ave.
Berkeley, CA 94704

Jeffrey Owings
Project Officer
National Center for Education Statistics

U.S. Department of Education
Office of Educational Research and Improvement

NCES 92-042

U.S. Department of Education
Lamar Alexander
Secretary

Office of Educational Research and Improvement
Diane Ravitch
Assistant Secretary

National Center for Education Statistics
Emerson J. Elliott
Acting Commissioner

National Center for Education Statistics

"The purpose of the Center shall be to collect, and analyze, and disseminate statistics and other data related to education in the United States and in other nations."—Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e–1).

August 1992

Contact:
Jeffrey Owings
(202) 219–1777

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328
ISBN 0-16-038011-1

Foreword

The National Education Longitudinal Study of 1988 (NELS:88) is a large-scale, national longitudinal study designed and sponsored by the National Center for Education Statistics (NCES), with support from other government agencies. Beginning in the spring of 1988 with a cohort of eighth graders (25,000) attending public and private schools across the nation, these same individuals were re-surveyed in 1990. During the base-year, data were also collected from students' parents, teachers, and school principals. Taken together, the base-year and follow-up data of NELS:88 provide a wealth of information about eighth graders (1988 school year) as they move both in and out of the U.S. school system and into the many and varied activities of early adolescence.

This study examines the characteristics of eighth-grade students who were at risk of school failure (i.e., low achievement test scores and dropping out of school). Seven sets of variables were examined: 1) basic demographic characteristics; 2) family and personal background characteristics; 3) the amount of parental involvement in the student's education; 4) the student's academic history; 5) student behavioral factors; 6) teacher perceptions of the student; and 7) the characteristics of the student's school.

In this study, many factors were found to predict at-risk status that were independent of the student's sex, race–ethnicity, and socioeconomic background. These findings should prove to be useful to researchers, educators, and policymakers who are interested in better understanding the many factors that can lead to school failure.

Paul Planchon
Associate Commissioner
Elementary and Secondary Education Statistics Division

Jeffrey Owings
Branch Chief
Longitudinal and Household Studies Branch

Acknowledgments

This report was prepared under the direction of Jeffrey Owings, Chief, Longitudinal and Household Studies Branch, Elementary/Secondary Education Statistics Division. Many individuals made substantial contributions to the preparation of this report. William Marelich of MPR Associates provided programming assistance. In addition, Andrea Livingston, Leslie Retallick, Sharlene Mulder, Ramona McCowan, and Santosh Seeram of MPR Associates provided invaluable editorial, graphics, and production assistance.

Numerous members of the NCES staff helped prepare various parts of the report. Marilyn McMillen, Jeffrey Owings, and Anne Hafner reviewed drafts and table shells during initial stages of the project. Mary Frase of NCES, Oliver Moles of the Office of Research, and Aaron Pallas of Michigan State University reviewed an earlier version of this report.

The report was reviewed by Jorge del Pinal, U.S. Bureau of the Census; Joseph Hawkins, Montgomery County Public Schools; Alan Ginsburg, U.S. Department of Education; and John Grymes, Samuel Peng, and Robert Burton of the National Center for Education Statistics. Their efforts and contributions are greatly appreciated.

Highlights

This report examines the characteristics of students in the eighth-grade cohort of 1988 who were at risk for school failure. Seven sets of variables were examined: 1) basic demographic characteristics; 2) family and personal background characteristics; 3) the amount of parental involvement in the student's education; 4) the student's academic history; 5) student behavioral factors; 6) teacher perceptions of the student; and 7) the characteristics of the student's school.

Three measures of school failure were used: 1) scores on achievement tests in mathematics; 2) scores on achievement tests in reading; and 3) dropout status as of spring 1990. About 19 percent of the eighth-grade class of 1988 were performing below the basic proficiency level in mathematics, while about 14 percent were performing below the basic proficiency level in reading. In addition, about 6 percent of the eighth-grade cohort of 1988 were dropouts in the spring of 1990.

Demographic variables

Three basic demographic variables were examined: the student's sex, race–ethnicity, and socioeconomic status.

- Black, Hispanic, and Native American students and students from low–socioeconomic backgrounds were more likely than other students to be deficient in basic mathematics and reading skills. These students were also more likely than other students to drop out between the 8th and 10th grades.

- Male eighth-graders were more likely than their female peers to have low basic skills, but were no more likely to drop out.

- After controlling for the student's sex and socioeconomic status, black and Hispanic dropout rates were no longer statistically different from white dropout rates.

- Even after controlling for the student's sex and socioeconomic status, black and Hispanic students were more likely than white students to perform below basic proficiency levels in mathematics and reading.

Effects of other characteristics after controlling for demographic characteristics

Many factors were found to predict at-risk status that were independent of the student's sex, race–ethnicity, and socioeconomic background. Controlling for basic demographic characteristics, the following groups of students were found to be more likely to have poor basic skills in the eighth grade and to have dropped out between the 8th and the 10th grades:

- Students from single-parent families, students who were overage for their peer group, or students who had frequently changed schools;
- Eighth-grade students whose parents were not actively involved in the student's school, students whose parents never talked to them about school-related matters, or students whose parents held low expectations for their child's future educational attainment;
- Students who repeated an earlier grade, students who had histories of poor grades in mathematics and English, or students who did little homework;
- Eighth-graders who often came to school unprepared for classwork, students who frequently cut class, or students who were otherwise frequently tardy or absent from school;
- Eighth-graders who teachers thought were passive, frequently disruptive, inattentive, or students who teachers thought were underachievers; and
- Students from urban schools or from schools with large minority populations.

Eighth-graders from schools that had a heavy emphasis on academics were less likely to have poor basic skills. However, students from these types of schools were no more or less likely to drop out than were students from schools which place less emphasis on academics.

Table of Contents

Section		Page
Foreword		iii
Acknowledgments		iv
Highlights		v
List of Tables		ix
Chapters		
1	**Introduction**	1
	Definition of At-Risk Outcomes	2
	Organization of This Report	2
2	**Demographic Background Factors**	5
	Results	5
	Relative Risk	6
3	**Family and Personal Background Factors**	11
	Results: Univariate Odds Ratios	11
	Results: Multivariate Odds Ratios	13
	Summary	15
4	**Parental Involvement**	17
	Results: Univariate Odds Ratios	17
	Results: Multivariate Odds Ratios	20
	Summary	22
5	**Academic History and Characteristics**	23
	Results: Univariate Odds Ratios	24
	Results: Multivariate Odds Ratios	27
	Summary	28
6	**Student Behaviors**	31
	Results: Univariate Odds Ratios	32
	Results: Multivariate Odds Ratios	35
	Summary	37
7	**Teacher Perceptions**	39
	Results: Univariate Odds Ratios	39
	Results: Multivariate Odds Ratios	40
	Summary	42

Section Page

8 **School Environment** 43
Results: Univariate Odds Ratios 43
Results: Multivariate Odds Ratios 46
Summary 49

9 **Discussion** 51

Appendices

Appendix A: Data and Methodology 53

Appendix B: Sample Sizes, Percentage Tables, and Standard Error Tables 63

List of Tables

Table		Page
2.1	Percentage of eighth-grade students in 1988 performing below basic levels of reading and mathematics and percentage dropping out of school, 1988 to 1990, by basic demographics	6
2.2	Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by basic demographics	7
2.3	Adjusted odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by basic demographics	8
3.1	Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by family background factors	13
3.2	Adjusted odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by family background factors	15
4.1	Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by parental involvement	19
4.2	Adjusted odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by parental involvement	21
5.1	Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by academic characteristics	25
5.2	Adjusted odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by academic characteristics	29
6.1	Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by student behaviors	34
6.2	Adjusted odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by student behaviors	36
7.1	Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by teacher perceptions	40
7.2	Adjusted odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by teacher perceptions	42

Table **Page**

8.1 Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by school environment 45

8.2 Adjusted odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by school environment 47

Appendix Tables

A1 Percentage of all sampled students and students with parent data performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990 55

A2 Outcome variables 56

A3 Composite and recoded variables 57

A4 Composite variables for school environment 58

B2.1 Sample sizes and standard errors for table 2.1 65

B2.2 Standard errors for table 2.2 66

B2.3 Standard errors for table 2.3 66

B3.1 Percentages upon which the odds ratios of tables 3.1 and 3.2 are based 67

B3.2 Sample sizes and standard errors for table B3.1 68

B3.3 Standard errors for table 3.1 69

B3.4 Standard errors for table 3.2 70

B4.1 Percentages upon which the odds ratios of tables 4.1 and 4.2 are based 71

B4.2 Sample sizes and standard errors for table B4.1 72

B4.3 Standard errors for table 4.1 73

B4.4 Standard errors for table 4.2 74

B5.1 Percentages upon which the odds ratios of tables 5.1 and 5.2 are based 75

B5.2 Sample sizes and standard errors for table B5.1 77

B5.3 Standard errors for table 5.1 79

B5.4 Standard errors for table 5.2 81

B6.1 Percentages upon which the odds ratios of tables 6.1 and 6.2 are based 83

B6.2 Sample sizes and standard errors for table B6.1 85

B6.3 Standard errors for table 6.1 87

B6.4 Standard errors for table 6.2 88

B7.1 Percentages upon which the odds ratios of tables 7.1 and 7.2 are based 89

B7.2 Sample sizes and standard errors for table B7.1 90

ED349369

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

Table		Page
B7.3	Standard errors for table 7.1	91
B7.4	Standard errors for table 7.2	92
B8.1	Percentages upon which the odds ratios of tables 8.1 and 8.2 are based	93
B8.2	Sample sizes and standard errors for table B8.1	95
B8.3	Standard errors for table 8.1	97
B8.4	Standard errors for table 8.2	99

Chapter 1

Introduction

Research on the educationally disadvantaged provides a clear portrait of those likely to fail in elementary and secondary schools.[1] Students from low-socioeconomic backgrounds, from minority groups, or whose parents are not directly involved in their education, are at risk for educational failure—either by failing to learn while in school or by dropping out of school altogether. Over the last decade there has been a growing realization that students from minority backgrounds, low-income families, or both—those students most likely to be "at risk"—are rapidly assuming an unprecedented share of the student population.[2] Current estimates of the proportion of American children who are at risk for school failure range from 10 percent to 25 percent, depending upon which indicators are used to define at-risk children. Pallas, Natriello, and McDill noted that 35 percent to 40 percent of American students read at levels below what is expected of children their age. These authors estimated the at-risk population to be 33 percent of the total school population—and they believed their estimate to be conservative. Due to projected increases in the proportion of American schoolchildren from minority families, especially families of Hispanic origin, Pallas and his colleagues expect the problem of school failure to increase substantially between now and the year 2020 unless significant improvements occur in the lives and education of poor and minority children.

A central task of the research community is to identify those factors that lead students to be at risk and to identify which school-based interventions are effective in dealing with at-risk students.[3] Educators and policymakers agree that failure to adequately prepare for the growing numbers of at-risk students may leave the nation with severe educational problems that could ultimately threaten our social and economic stability.

This report presents the results of an analysis of the academic performance and dropout status of at-risk eighth-grade students in the National Education Longitudinal Study of 1988 (NELS:88). The purpose of this report is two-fold. The first goal is to examine factors thought to be associated with school failure and highlight the relative risk that they pose to students' educational outcomes. The second objective of this report is to highlight the range of variables in the NELS:88 data set that can be used to explore the issues surrounding the education of at-risk students. To this end, this report presents a wide range of factors thought to be associated with school failure. Three educational outcomes are examined: scores on achievement tests in mathematics, scores on achievement tests in reading, and actual dropout status as of the 10th grade.

---

[1]For a brief review of the research literature on education for the disadvantaged, see J. Ralph, "Improving Education for the Disadvantaged: Do We Know Whom to Help?" *Kappan* (January 1989).

[2]A. Pallas, G. Natriello, and E. McDill, "The Changing Nature of the Disadvantaged Population: Current Dimensions and Future Trends," *Educational Researcher* (June–July 1989).

[3]For a discussion of programs for at-risk students, see R. Slavin, N. Karweit, and N. Madden, Center for Research on Elementary and Middle Schools, *Effective Programs for Students At-Risk*. (Baltimore: The Johns Hopkins University, 1989); G. Wehlage and G. Smith, National Center For Effective Secondary Schools, *Programs for At-Risk Students: A Research Agenda* (1986).

Definition of At-Risk Outcomes

An "at-risk" student is generally defined as a student who is likely to fail at school. In this context, school failure is typically seen as dropping out of school before high school graduation. As a result, the characteristics of at-risk students have traditionally been identified through retrospective examinations of high school dropouts' family and school histories. Those characteristics associated with dropping out of school then become the defining characteristics of at-risk students.

However, defining school failure solely on the basis of a student's dropout status may be too restrictive. Students who fail to achieve basic skills before leaving school may also be at risk of school failure. Thus, this report expands the notion of "at risk" to include failure to achieve basic levels of proficiency in key subjects (mathematics and reading).

In this report, therefore, students are considered at risk of school failure if, in the eighth grade, they had failed to achieve basic proficiency in mathematics or reading, or had dropped out of school altogether. While some proportion of these students may eventually graduate high school with adequate literary and numeracy skills, their academic performance in the eighth grade has put them at risk of school failure.

The mathematics and reading tests taken by the students in the NELS:88 Base Year Survey were designed so that the test results, in addition to being reported as simple numbers, were also reported as performance levels.[4] For the mathematics test, students could score within four possible performance levels: advanced, intermediate, basic, or below basic. Students performing below the basic math level could not perform arithmetic operations (addition, subtraction, multiplication, and division) on whole numbers. For the reading comprehension test, students could score within three possible performance levels: advanced, basic, or below basic. Students performing below the basic reading level could not recall details and identify the author's main thought. Data are also available in NELS:88 on the number of students who dropped out between the spring of 1988 and of 1990 (the time of the first follow-up survey).[5]

Organization of This Report

This report contains eight sections. The seven chapters that follow this introduction are organized around sets of variables that represent seven distinct conceptual factors, purported to be related to students' at-risk status. These factors include: student demographic background, family background, parental involvement, student academic history, student behavior, teachers' perceptions of the student, and school characteristics. While these seven groups of factors form a conceptual framework describing the process of eighth-grade school failure, the primary focus of this report is descriptive and does not provide a formal test of this model.

---

[4]The achievement tests were developed by the Educational Testing Service (ETS) specifically for the NELS:88 survey. The ETS report, *Psychometric Report for the NELS:88 Base Year Test Battery* (1989), discusses the properties of the test battery and item reliabilities; this report can be obtained from NCES.

[5]"Dropping out" is defined in this report as a status. Students were counted as dropouts if they were in school in the spring of 1988, but were not in school in the spring of 1990. By this definition, students were not included as dropouts if they dropped out of school during this time period but returned to school by the spring of 1990. Rather than using a status definition, dropping out could also have been defined as an "event," in which all students who had dropped out of school between the 8th and 10th grades would be counted as dropouts, regardless of whether or not they returned to school by the time of the first follow-up survey. By this event definition, about 6.7 percent of the eighth-grade class of 1988 dropped out. This analysis presented in this report was also run with an event

Three kinds of statistics are presented in this report: 1) percentages of students with various characteristics who perform below basic proficiency levels and who drop out of school; 2) simple odds ratios for the three outcome measures for students with different characteristics; and 3) odds ratios for these outcome measures adjusted for sex, race–ethnicity, and socioeconomic status (SES). The first kind of statistic, simple percentages, are presented only in chapter 2, providing a context for interpreting the odds ratios presented in subsequent chapters. A brief description of odds ratios is also presented in chapter 2. Finally, chapters 3 through 8 present the simple and adjusted odds ratios; the simple percentage tables for these chapters are included in appendix B.[6]

---

definition of dropping out. There were no substantial differences in the results from these presented here.

[6]Because many of the variables examined come from parent rather than student survey items (for example, number of older sibling dropouts, parent–student discussion of particular topics, some indices of the student's educational history, and so on), the estimates in chapters 3 through 8 have been generated with a slightly smaller number of students than those in chapter 2. While chapter 2 presents data for all students in NELS:88, the later chapters restrict the sample to only those students for whom parent data were available. For math proficiency, the sample was reduced from 21,908 to 19,878 students; for reading proficiency, the sample was reduced from 22,676 to 20,576 students. When creating estimates for dropout status, the sample decreased by 1,096 students, dropping from 17,424 to 16,328 students. The bias introduced by these reductions is slight; for more information, see appendix A.

Chapter 2

Demographic Background Factors

Many previous studies have found a student's socioeconomic status (SES) to be an important element of at-risk status. Whether measured by parents' occupation, educational attainment, or family income, or by a more complex index, students from lower SES families are more likely to experience school failure than those from higher SES families.[7] It appears that Hispanics who leave school before graduating generally do so earlier than black and white students, who tend to leave during the last two years of high school.[8] This fact has significant impact on researchers' understanding of the at-risk phenomenon, because most longitudinal research to date has focused on the high school years, and it is quite possible that significant numbers of at-risk Hispanic students have not been included in these analyses. The following section examines three demographic background factors—socioeconomic status, race–ethnicity, and sex—and their relationship to at-risk status.

Results

Overall, about 19 percent of eighth graders in the class of 1988 performed below the basic level of proficiency in mathematics, and about 14 percent were below basic proficiency in reading (table 2.1). In addition, approximately 6 percent of the eighth-grade class of 1988 had dropped out of school by the 10th grade.[9] Compared with other students, a larger percentage of male students, of black, Hispanic, or Native American students, and of students from low-socioeconomic backgrounds were deficient in basic skills. A larger proportion of black, Hispanic, or Native American students and low-SES students were also dropouts.

---

[7]R.B. Cairns, B.C. Cairns, and H.J. Neckerman, "Early School Dropout: Configurations and Determinants," *Child Development* 60 (1989):1437–1452; R.B. Ekstrom, M.E. Goertz, J.M. Pollack, and D.A. Rock, "Who Drops Out of High School and Why? Findings from a National Study," in *School Dropouts: Patterns and Policies*, ed. G. Natriello (New York: Teachers College Press, 1989): 52–69; R.W. Rumberger, "High School Dropouts: A Review of Issues and Evidence," *Review of Educational Research* 57 (1987): 101–121.

[8]R. Tidwell, "Dropouts Speak Out: Qualitative Data on Early School Departures," *Adolescence* 23 (1988): 939–954.

[9]During the base-year survey of NELS:88, 5.4 percent of students were excluded from the sample because they were identified as being unable to complete the questionnaire owing to limitations in their language proficiency or their mental or physical disabilities. The dropout rates reported here are based solely on the sample of base-year eligible students. These rates are somewhat lower than those reported in P. Kaufman, M. McMillen, and S. Whitener, *Dropout Rates in the United States: 1990* (September 1991), which were based on estimates from both the eligible and ineligible students.

Table 2.1—Percentage of eighth-grade students in 1988 performing below basic levels of reading and mathematics and percentage dropping out of school, 1988 to 1990, by basic demographics

Variable	Below basic mathematics	Below basic reading	Dropped out
Total	18.8	13.7	6.0
Sex			
Male	20.4	15.5	6.2
Female	17.2	11.8	5.8
Race–ethnicity†			
Asian	13.0	14.1	2.8
Hispanic	27.6	21.0	9.1
Black	28.9	23.4	10.0
White	15.4	10.4	4.8
Native American	30.7	28.9	11.1
Socioeconomic status			
Low	29.7	22.6	14.5
Middle	21.5	14.7	4.6
High	12.1	8.8	2.6

† Not shown separately are persons whose race–ethnicity is unknown (approximately 2 percent of the unweighted sample).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Relative Risk

In order to examine the relative disadvantage of males, blacks, Hispanics, Native Americans, and low-SES students on these measures, table 2.2 presents the odds ratios of students performing below the basic mathematics and reading levels and of students dropping out of school among students with different background characteristics. For example, the odds that a Hispanic student dropped out were approximately 1 in 10 or 0.100, and the odds that a white student dropped out were approximately 1 in 20 or 0.050.[10] The odds ratio comparing Hispanics with whites was 0.100/0.050, or approximately 2.01, indicating that being Hispanic rather than white increased by a factor of 2.01 the odds of an eighth grader in 1988 dropping out by 1990. In other words, Hispanic students were twice as likely to drop out as were white students.[11]

[10]These odds can be calculated from the percentages in table 2.1. The odds that a Hispanic student dropped out was 9.1/[100–9.1]=0.100, while the odds that a white student dropped out was 4.8/[100–4.8]=0.050.

[11]The percentage of Hispanic and Asian students performing below basic levels in mathematics and reading and the percentage dropping out between the 8th and 10th grades may be underestimated due to the fact that many students with language difficulties were systematically excluded from the sample of students in NELS:88.

It is important for the reader to keep in mind that the odds ratios presented in this report are not equivalent to the ratio of percentages. For example, the percentage of Hispanic students dropping out was 9.1 percent, while the percentage of white students dropping out was 4.8 percent. The ratio of the percentage of Hispanic students to white students dropping out was 9.1/4.8 or 1.90, while the odds ratio comparing Hispanics to whites was 2.01. In terms of the percentages, therefore, Hispanics were 90 percent more likely than whites to drop out, while in terms of odds they were 101 percent more likely to drop out. In this report we use the terms "more likely" and "less likely" to refer to the change in the odds and not the change in percentages.

In terms of odds ratios, females were slightly less likely than males to have low mathematics and reading skills, but were equally likely to have dropped out of school (table 2.2). Native American, Hispanic and black students were about twice as likely as white students to have performed below basic skill levels in mathematics and reading in the 8th grade and to have dropped out of school by the beginning of the 10th grade. Students from low-socioeconomic backgrounds were about twice as likely as middle class students to perform below basic skill levels and were almost four times as likely to have dropped out.

Table 2.2—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by basic demographics

Variable	Below basic mathematics	Below basic reading	Dropped out
Sex			
Female vs. male	0.81*	0.73**	0.92
Race–ethnicity†			
Asian vs. white	0.82	1.42**	0.59
Hispanic vs. white	2.09**	2.29**	2.01**
Black vs. white	2.23**	2.64**	2.23**
Native American vs. white	2.43**	3.50**	2.50**
Socioeconomic status			
Low vs. middle	1.90**	1.91**	3.95**
High vs. middle	0.46**	0.41**	0.39*

† Not shown separately are persons whose race–ethnicity is unknown (approximately 2 percent of the unweighted sample).

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

However, it is well known that race–ethnicity and socioeconomic status are highly related and that students from minority backgrounds are also more likely to have low SES. Therefore, the increased likelihood of minority students being at risk may be due in part to their low-SES status and not their race–ethnicity per se. Table 2.3 presents odds ratios adjusted for socioeconomic status, race–ethnicity, and sex.[12] For example, when looking at dropout status, the adjusted odds ratio for the comparison of Hispanic versus white students is 1.12 and is no longer statistically significant. This adjusted figure indicates that when socioeconomic status and sex were held constant, in terms of odds, the likelihood of Hispanics dropping out was no greater than that of whites dropping out. That is, within levels of socioeconomic status and sex, Hispanics and whites dropped out at similar rates.

Table 2.3—Adjusted odds ratios[1] of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by basic demographics

Variable	Below basic mathematics	Below basic reading	Dropped out
Sex			
Female vs. male	0.77**	0.70**	0.86
Race–ethnicity[2]			
Asian vs. white	0.84	1.46**	0.60
Hispanic vs. white	1.60**	1.74**	1.12
Black vs. white	1.77**	2.09**	1.45
Native American vs. white	2.02**	2.87**	1.64
Socioeconomic status			
Low vs. middle	1.68**	1.66**	3.74**
High vs. middle	0.49**	0.44**	0.41*

[1] Odds ratios after controlling for the student's socioeconomic status, race–ethnicity, and sex.

[2] Not shown separately are persons whose race–ethnicity is unknown (approximately 2 percent of the unweighted sample).

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

[12] Logistic regression equations were used to adjust for SES, race–ethnicity, and sex. See appendix A for a more detailed explanation of the adjustment methodology.

After adjusting for SES and sex, students from all minority groups appeared to drop out at much more similar rates as those of white students. That is, none of the adjusted odds ratios for these comparisons were statistically significant. However, even after controlling for SES and sex, black, Hispanic, and Native American students were still more likely than white students to achieve below basic skill levels in mathematics and reading. For instance, compared with white students, black students were 77 percent more likely, Hispanic students were 60 percent more likely, and Native American students were twice as likely to perform below the basic math skill level (table 2.3). Black students were about twice as likely as white students to fall below the basic proficiency level in reading, Hispanic students were about 74 percent more likely, and Native American students were 187 percent more likely.

The rest of this report explores the relationship between a variety of other variables and at-risk status—with "at-risk" status defined as performing below basic proficiency levels in mathematics and reading or as having dropout status as of the 10th grade. The basic demographic variables presented in this chapter will be used as control variables in following chapters. That is, many of the variables examined in the following chapters are correlated with these basic demographic characteristics. For example, students from single-parent families are more likely to be from lower socioeconomic backgrounds than students from intact families. Any simple or univariate relationship between school outcomes and being from a single-parent family may be due to the students' low-socioeconomic status rather than having a single parent per se. Therefore, in the following chapters, after the simple or univariate relationships are presented, the relationships between at-risk factors and *actual* at-risk status are shown after holding constant these three basic demographic variables.

Chapter 3

Family and Personal Background Factors

In addition to demographic characteristics, family characteristics have been shown to affect students' educational success. Both students from single-parent families and those from large families have been found to have greater risk of school failure.[13] For example, Zimiles and Lee, in examining the High School and Beyond (HS&B) sophomore cohort, found that although the differences were small, students from intact families had higher test scores and grade-point averages than did students from either step-families or single-parent families. Further, the researchers found that in comparison with students from intact families, students from step-families and single-parent families were between two and three times more likely to drop out of school between their sophomore and senior years. Zimiles and Lee discovered that these associations were highly related to the sex of the student and that of the single parent or step-parent. For example, it was found that males drop out of high school more than do females when they live with a single mother, but the reverse is true when they live with a single father.[14] Heatherington, Featherman, and Camara, in an extensive review of prior studies, found consistent differences of aptitude and achievement that favored children from two-parent families over those from one-parent families. However, they noted that these differences, although significant, were too small to be meaningful and were often established without adequate control of socioeconomic status or race.[15]

Other factors related to the family situation of students may also be associated with their educational success. For example, Barro and Kolstad found that the number of siblings a student had was associated with dropping out, although they surmised that this relationship was largely due to the effect of SES.[16] In the following section, the student's age, the number of older sibling dropouts, and family composition, size, and mobility are examined to explore the relationship between these factors and school failure.

Results: Univariate Odds Ratios

Table 3.1 presents the simple odds ratios for family–personal background factors. Students who were overage for their grade, who were from single-parent families, who had older siblings who had dropped out of school, and who came from families that had moved frequently were all at greater risk of school failure than students who did not have these characteristics. For example, in terms of the odds ratios, being overage for their grade nearly tripled the likelihood of students performing below the basic proficiency level in mathematics, more than tripled the likelihood in reading, and increased by more than 11 times the likelihood of their dropping out (table 3.1).[17] Students from single-parent families were about 55 percent to 65 percent more

---

[13]Ekstrom et al., "Who Drops Out and Why?" 1989; Mensch and Kandel, "Dropping Out and Drug Involvement," 1988; Pallas et al., "Changing Nature of the Disadvantaged," 1989; Rumberger, "A Review of Issues and Evidence," 1987.

[14]H. Zimiles and V.E. Lee, "Adolescent Family Structure and Educational Progress," *Developmental Psychology* 27 (1991):314–320.

[15]E.M. Heatherington, D.L. Featherman, and K.A. Camara, *Intellectual Functioning and Achievement of Children in One-parent Households* (Washington, D.C.: National Institute of Education, 1981).

[16]S.M. Barro and A. Kolstad, "Who Drops Out of High School? Findings from High School and Beyond" (U.S. Department of Education Contractor Report, May 1987).

[17]It is not clear from the data presented here whether students are overage because they were retained in school or

likely to perform below the basic skill levels and more than three times as likely to drop out as students from two-parent families. Similarly, compared with students without older siblings who dropped out, students with one older sibling who dropped out were more likely to have poor school outcomes. In fact, in terms of odds ratios, they were 47 percent more likely to fail to reach the basic math level, 38 percent more likely not to reach the basic reading level, and more than twice as likely to drop out. Students with more than one older sibling dropout were at an even greater risk of failing to attain the basic math proficiency level and of dropping out.

In terms of odds ratios, students from very large families (eight or more people) were more likely to perform below the basic math and reading levels than were students in small families (two to three members). However, students in medium-sized families (four or five people) were about 50 percent less likely to drop out than were students in small families. Family mobility, measured by the number of times a student had changed schools, was also associated with poor educational outcomes.[18] Compared with students who had never changed schools, in terms of odds ratios students who had changed schools twice were almost two and one-half times as likely to drop out, those who had changed schools three times were three times as likely, and students who had changed schools four times were four times as likely to drop out.

---

because they entered school late for their age. However, certain items in the NELS:88 base-year data set ask the students whether they have been retained and thereby enable an analysis of the independent effect of being overage. A later chapter explores the independent effect of repeating earlier grades.

[18]In counting the number of times the student had changed schools, movements resulting from a promotion and movements between schools within a single school district were dismissed.

Table 3.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by family background factors

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is overage for grade			
Yes vs. no	2.88**	3.19**	11.42**
Family composition			
Single parent vs. two parents	1.65**	1.56**	3.26**
Family size			
4–5 people vs. 2–3 people	0.78**	0.89	0.47**
6–7 people vs. 2–3 people	1.03	1.14	0.69
8 or more people vs. 2–3 people	1.31**	1.63**	1.30
Number of older sibling dropouts			
1 vs. none	1.47**	1.38**	2.41**
2 or more vs. none	1.78**	1.47**	3.48**
Changed schools			
Once vs. not at all	1.01	1.18*	1.76*
Twice vs. not at all	1.30**	1.60**	2.46**
Three times vs. not at all	1.44**	1.48**	3.01**
Four times vs. not at all	1.34	1.34**	3.99**
Five+ times vs. not at all	1.17	1.16	8.91**

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Results: Multivariate Odds Ratios

Many of these family–personal background factors are associated with socioeconomic status, race–ethnicity, or both. For example, students who have single parents or come from large families are perhaps more likely to come from low-SES backgrounds. Therefore, the odds ratios presented in table 3.2 for these risk factors are adjusted for student SES, race–ethnicity, and sex.

After adjusting for these demographic variables, students who were overage, who were from single-parent families, or who had older siblings who had dropped out were still more likely to have poor school outcomes. In terms of the adjusted odds ratios, compared with their younger counterparts, overaged students were more than twice as likely to perform below the basic levels, and were more than eight times as likely to drop out of school (table 3.2). Similarly, after adjusting for SES, race–ethnicity, and sex, students from single-parent families were still more likely to fail to perform at the basic proficiency levels. They were about one-quarter to one-

third more likely to perform below the basic reading and math levels and were more than two and a half times as likely to drop out of school as were students from two-parent families.

Similarly, after holding SES, race–ethnicity, and sex constant, students with one older sibling dropout were 19 percent more likely to perform below the basic math level than were students without an older sibling dropout; students with an older sibling dropout were also about 75 percent more likely to drop out. Furthermore, students with two or more older sibling dropouts were one-third more likely to perform below the basic math level and twice as likely to drop out of school as students without an older sibling dropout.

Family mobility had a significant association with poor school outcomes, independent of the student's sex, race–ethnicity and socioeconomic status. Using students who had never changed schools as the comparison group, it was found that changing schools two to four times increased the likelihood of performing below the basic math level by about 20 percent or more in terms of the odds ratios. Students who had changed schools one to three times increased their likelihood of performing below the basic reading level by about 20 percent to 40 percent. Changing schools also had a significant relationship to dropping out: the odds of dropping out steadily rose as the number of school changes increased. After adjusting for SES, race–ethnicity, and sex, students who had changed schools once were 80 percent more likely to drop out, while students who had changed schools twice were more than twice as likely to drop out as students who had never changed schools. Students who had changed schools five times or more during their first eight grades of schooling were more than eight times as likely to drop out as those students who had never changed schools.

Table 3.2—Adjusted odds ratios† of eighth-grade students in 1988 performing below basic levels of reading and mathematics in *1988 and dropping out of school, 1988 to 1990, by family* background factors

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is overage for grade			
Yes vs. no	2.20**	2.35**	8.37**
Family composition			
Single parent vs. two parents	1.35**	1.24**	2.64**
Family size			
4–5 people vs. 2–3 people	0.87*	1.01	0.53**
6–7 people vs. 2–3 people	1.00	1.07	0.64
8 or more people vs. 2–3 people	1.02	1.24	0.91
Number of older sibling dropouts			
1 vs. none	1.19**	1.09	1.76**
2 or more vs. none	1.34**	1.08	2.04**
Changed schools			
Once vs. not at all	1.01	1.18**	1.80*
Twice vs. not at all	1.17*	1.41**	2.25**
Three times vs. not at all	1.34**	1.32**	2.83**
Four times vs. not at all	1.21*	1.18	4.07**
Five+ times vs. not at all	1.07	1.04	8.13**

† Odds ratios after controlling for the student's socioeconomic status, race–ethnicity, and sex.

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Summary

It has been known for a long time that the characteristics of a student's family can have a profound impact on the student's educational attainment. It is therefore not particularly surprising that in this analysis there were several factors related to the student's family–personal background that may have influenced the student's educational outcomes.

However, given the educational impact of socioeconomic status and the fact that many family background characteristics are correlated with SES, it is interesting that these relationships held even when the student's sex, race–ethnicity, and socioeconomic status were held constant. For instance, in terms of odds, students who were overage for their grade, who were from single-parent families, or who had frequently changed schools were more likely than other

students to have low basic skills in mathematics and reading and were more likely to drop out regardless of their sex, race–ethnicity, or SES. Students who had one or more older siblings who had dropped out were also more likely to have low mathematics skills and were more likely to drop out.

Chapter 4

Parental Involvement

Several researchers have identified poor relationships with parents as contributors to students' risk for school failure. Finn cited a study by Hirschi in which delinquency was more frequent among students whose parents did not know where their children were when the youngsters were not at home and among students who did not share their thoughts and feelings with their parents. Finn also cited a study by Cervantes in which students who failed in school were found to come from families in which members were more isolated from each other and from non-family members than were the family members of children who were successful in school. Ekstrom and her colleagues also found that at-risk students talked less with their parents about their thoughts and feelings.[19]

In studying homework practices among Maryland elementary school students, J. Epstein found that students who liked to talk about school and their homework with their parents and those who were not anxious about working on assignments with their parents had higher reading and math skills and were more often considered "homework stars" by their teachers.[20] In addition, the educational expectations and aspirations of parents also have been considered as critical for the child's educational success.[21] In fact, when examining the effect of single- versus two-parent families, Milne, Myers, Rosenthal, and Ginsburg found that parents' educational expectations were significant mediators of the negative effects of single-parent family membership, in addition to SES.[22]

The NELS:88 parent questionnaire requested parents to indicate their involvement in their child's school activities, the frequency with which they discussed school-related topics with their children, and their expectations for their child's educational career.[23] The following section relates parent responses to these items to the students' test performances and incidence of dropping out.

Results: Univariate Odds Ratios

A low amount of parental involvement in PTA and school volunteer activities was associated with low student performance and an increased risk of dropping out (table 4.1). Specifically, in terms of the odds, children of parents with low school involvement were about 40 percent more likely to perform below the basic math and reading levels and were more than twice as likely to drop out of school as were children of parents with moderate involvement.

---

[19]J.D. Finn, "Withdrawing from School," *Review of Educational Research* 59 (1989): 117–142; Ekstrom et al., "Who Drops Out and Why?" 1989.

[20]Joyce L. Epstein, Center for Research on Elementary and Middle Schools, *Homework Practices, Achievements, and Behaviors of Elementary School Students*, Report No. 26 (Baltimore: The Johns Hopkins University, July 1988).

[21]See, for example, W. Sewell and R. Hauser, "Causes and Consequences of Higher Education: Models of the Status Attainment Process," *American Journal of Agricultural Economics* 54 (1972):851–861.

[22]A.M. Milne, D.E. Myers, A.S. Rosenthal, and A. Ginsberg, "Single Parents, Working Mothers, and the Educational Achievement of School Children," *Sociology of Education* 59 (July 1986):125–139.

[23]The variable representing parental involvement with the school is a composite variable made up of several items from the NELS:88 Base-Year Parent Survey measuring the parent's involvement with the PTA or other volunteer activities at the school. See appendix A for a full description of the variables used in this analysis.

In terms of the odds ratios, students whose parents infrequently talked about school activities and plans were more likely to perform below the basic proficiency levels and to drop out. For example, compared with students whose parents stated that they talked about school regularly with their children, students whose parents discussed school only occasionally were about 25 percent more likely to fail to reach the basic proficiency levels; those whose parents rarely discussed school were over 50 percent more likely to fail to reach the basic levels; and those whose parents never discussed school were twice as likely to fail. Students whose parents never discussed school with them were more than 11 times as likely to drop out as were those whose parents regularly did so.

It remains unclear to what extent parents' expectations of their children's success affect students' actual performance, or how students' performance informs their parents' expectations; in any case, students' at-risk status was associated with parental expectations for their children's education. In terms of the odds ratios, students whose parents expected them to attain a 4-year degree or higher were about 50 percent less likely to fail to achieve the basic proficiency level in math or reading and were about 70 percent less likely to drop out of school than were students whose parents expected only some college education (table 4.1). Students whose parents expected them to receive postsecondary vocational education were about 50 percent more likely to perform below the basic proficiency levels and 86 percent more likely to drop out than were students who were expected to finish only some college. In terms of the odds ratios, students whose parents did not expect them to finish high school were almost four times as likely to perform below the basic math level and almost two and one-half times as likely to perform below the basic reading level as students whose parents expected some college education. Furthermore, these eighth graders with low parental expectations were more than 16 times more likely to drop out of school.

Table 4.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by parental involvement

Variable	Below basic mathematics	Below basic reading	Dropped out
Parental involvement in PTA/school			
Low vs. medium	1.42**	1.39**	2.26**
High vs. medium	0.80*	0.82	0.36**
Parent talks about school with student			
Not at all vs. regularly	2.09**	2.04**	11.53**
Rarely vs. regularly	1.56**	1.66**	2.57**
Occasionally vs. regularly	1.24**	1.34**	1.70**
Parent talks about high school plans with student			
Not at all vs. regularly	1.49**	1.35	4.39**
Rarely vs. regularly	1.07	1.25*	1.31
Occasionally vs. regularly	0.92	0.97	0.97
Parent talks about postsecondary education plans with student			
Not at all vs. regularly	1.76**	1.67**	4.33**
Rarely vs. regularly	1.12	1.28**	1.50
Occasionally vs. regularly	0.91*	1.00	0.81
Parent's educational expectations for student			
Less than HS diploma vs. some college	3.82**	2.47**	16.22**
GED/HS diploma vs. some college	1.48	0.94	20.47**
Vocational education vs. some college	1.59**	1.50**	1.86*
4-year degree vs. some college	0.54**	0.51**	0.29**
Advanced degree vs. some college	0.34**	0.35**	0.16**

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Results: Multivariate Odds Ratios

It is likely that a number of the parental involvement variables are related to SES and to race–ethnicity. High-socioeconomic parents may have more time to become involved in PTA or school activities; minority parents may be less likely to participate in school activities. Furthermore, more highly educated parents are perhaps more likely to expect their children to follow their lead into higher education. Therefore, the odds ratios presented above may reflect the parent's educational attainment or socioeconomic status rather than the more specific factors of parental involvement and expectation. Table 4.2, below, presents the relative odds of students performing below basic proficiency levels and dropping out after controlling for SES, race–ethnicity, and sex.

Even after controlling for SES, race–ethnicity, and sex, parental involvement in the PTA and other school activities was associated with student performance and dropping out. In terms of the odds ratios, students whose parents had a low PTA or school involvement were about 20 percent more likely than students whose parents were moderately involved to perform below the basic math and reading levels (table 4.2). Furthermore, these students were more than half again as likely to drop out of school. In other words, within the same SES levels and when of the same race–ethnicity and sex, students whose parents were less involved with school activities were more likely to drop out than students whose parents were moderately involved.

Overall, the frequency of discussions between parents and students about school and their education was no longer associated with test performance after holding SES, race–ethnicity, and sex constant. However, the frequency of these discussions was still associated with dropping out of school between the 8th and 10th grades. After controlling for the basic demographic variables, students who never had conversations with their parents about school were almost three times more likely than those who regularly held these types of conversations to drop out of school. In terms of the odds ratios, students who never talked about their high school plans were almost six times more likely to drop out, and students who never talked about continuing their education after high school were about two and a half times more likely to drop out than students who had these regular conversations with their parents.

Parental expectations of their children's educational futures were significantly associated with the students' test performances and dropout status, even after controlling for SES, race–ethnicity, and sex. Parents who expected more of their children in terms of education had children who were performing at least adequately in school. In terms of the odds ratios, students whose parents did not expect them to even graduate from high school were three and one-half times as likely to perform below the basic math level and more than twice as likely to perform below the basic reading level as students who were expected to complete some college. Furthermore, these students were almost 14 percent more likely to drop out of school than students who were expected to receive at least some college education.

Table 4.2—Adjusted odds ratios† of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by parental involvement

Variable	Below basic mathematics	Below basic reading	Dropped out
Parental involvement in PTA/school			
Low vs. medium	1.21**	1.18**	1.64*
High vs. medium	0.94	0.98	0.43*
Parent talks about school with student			
Not at all vs. regularly	1.18	2.04	2.86*
Rarely vs. regularly	1.04	1.66	1.04
Occasionally vs. regularly	1.01	1.34	0.94
Parent talks about high school plans with student			
Not at all vs. regularly	1.12	1.35	5.75*
Rarely vs. regularly	0.94	1.25	1.46
Occasionally vs. regularly	0.93	0.97	1.23
Parent talks about postsecondary education plans with student			
Not at all vs. regularly	1.28*	1.19	2.55**
Rarely vs. regularly	1.03	1.20*	1.12
Occasionally vs. regularly	0.95	1.08	0.82
Parent's educational expectations for student			
Less than HS diploma vs. some college	3.50**	2.13**	13.79**
GED/HS diploma vs. some college	1.37	0.79	17.43**
Vocational education vs. some college	1.59**	1.47**	1.70
Four-year degree vs. some college	0.67**	0.63**	0.40**
Advanced degree vs. some college	0.39**	0.41**	0.21**

† Odds ratios after controlling for the student's socioeconomic status, race–ethnicity, and sex.

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Summary

Increased parental participation in the student's education is a prominent feature of many school reform efforts in general and of several programs for at-risk youth in particular.[24] It is noteworthy, therefore, that the results of this analysis show an association between parents taking an active part in the student's education and student outcomes. However, this association between student outcomes and parental involvement may merely indicate that parents whose children excel in school are more likely than other parents to take an active part in school. Without measures of prior student achievement it is not possible to judge the impact of parental involvement on student outcomes. Nonetheless, parental involvement in school activities had a consistent effect on all three measures of school failure, even after holding constant the student's sex, race–ethnicity, and socioeconomic status. In terms of the odds ratios, eighth graders with parents who were infrequently involved in their school were about 20 percent more likely to perform below basic skill levels and were 60 percent more likely to drop out. The frequency of discussions between the parent and the child about school-related concerns also had a consistent impact on whether or not the student dropped out. Students were particularly at risk if their parents never talked to them about these matters. Furthermore, students with parents who expected them to achieve a lower level of education were more likely to drop out and to have poor basic skills than other students, regardless of the student's sex, race–ethnicity, or socioeconomic status.

---

[24]Slavin et al., *Effective Programs for Students At Risk*, 1989.

Chapter 5

Academic History and Characteristics

A number of educational research studies have established that poor school achievement is an important predictor of school failure. In fact, Barrington and Hendricks found that at-risk students could be identified as underachievers as early as the third grade. Retention in grade as early as the primary years was shown to significantly increase children's risk of school failure.[25] In high school, students in the general or vocational tracks were found to be at greater risk than students in the academic track.[26] Moreover, students who did less homework were also noted to be less likely to succeed in school.[27] Although several studies have shown that at-risk students score at the average level on measures of cognitive ability, indicating that they do have the ability to succeed in school,[28] students who are at risk score lower than non-at-risk students on achievement tests and earn lower grade-point averages.[29]

Wolman, Bruininks, and Thurlow found that although handicapped students were generally at greater risk than non-handicapped students, learning disabled students and students with emotional disturbances experienced an even greater risk of failure than did most handicapped students. Among learning disabled students, those who were identified as "learning disabled" later in their school careers or who had received fewer special services were more likely to fail than those who were identified earlier or who had received more special services.[30]

---

[25]M.E. Binkley and R.W. Hooper, *Statistical Profile of Students Who Dropped Out of High School during School Year 1987-88*, Department of Research and Evaluation, Metropolitan Board of Public Education, ED 311 575 (Nashville: June 1989); Cairns et al., "Configurations and Determinants," 1989; Ekstrom et al., "Who Drops Out and Why?" 1989; H. Garber, P. Sunshine, and C. Reid, "Dropping Out and Returning to Urban Schools: Understanding Why Both Happen," (Paper presented at the annual meeting of the American Educational Research Association, March 1989, San Francisco, CA); Rumberger, "A Review of Issues and Evidence," 1987.

[26]J.B. Stedman, L.H. Salganik, and C.A. Celebuski, "Dropping Out: Educational Vulnerability of At-Risk Youth" (Library of Congress, Congressional Research Service, ED 300 495, Washington, D.C.: 1988).

[27]Ekstrom et al., "Who Drops Out and Why?" 1989; Finn, "Withdrawing from School," 1989; Stedman et al., "Educational Vulnerability of At-Risk Youth," 1988.

[28]B.L. Barrington and B. Hendricks, "Differentiating Characteristics of High School Graduates, Dropouts, and Nongraduates," *Journal of Educational Research* 82 (1989):309–319; P.M.G. Lopez, "Why Do They Leave? Social/Affective vs. Cognitive Predictors: A Developmental Look at Dropouts," (Paper presented at the annual meeting of the American Educational Research Association, April 11–16, 1990, Boston, MA).

[29]Binkley and Hooper, "Statistical Profile," 1989; Ekstrom et al., "Who Drops Out and Why?" 1989; Fine, "Why Urban Adolescents Drop Into and Out of School," 1987; Lopez, "Why do They Leave?" 1990; Rumberger, "A Review of Issues and Evidence," 1987; Tidwell, "Dropouts Speak Out," 1988.

[30]C. Wolman, R. Bruininks, and M.L. Thurlow, "Dropouts and Dropout Programs: Implications for Special Education," *Remedial and Special Education* 10 (1989): 6–20.

At-risk students also tend to feel more alienated from school, evidenced by low levels of participation in school as early as the third grade.[31] In their analysis of the High School & Beyond data, Ekstrom and her colleagues found that at-risk students were less satisfied with their educational progress, were less interested in school, were less likely to enjoy working in school, were less likely to feel popular with other students, and were less likely to believe that other students thought they were good students, good athletes, or important.[32]

In examining students surveyed in NELS:88, almost all of these characteristics—past academic performance, amount of homework done, emotional or learning disabilities, enrollment in particular types of classes, academic self-concept, and postsecondary plans—had a significant association with math and reading performance and with dropping out of school between the 8th and 10th grades. In the following section, these patterns and associations are explored.

Results: Univariate Odds Ratios

In terms of the simple odds ratios, students who had repeated a grade were more than two and a half times as likely as were students who had not repeated a grade to perform below the basic levels on the math and reading achievement tests (table 5.1). Students who had repeated an early grade—kindergarten through fourth grade—were almost five times as likely to drop out of school as those who had not; students who had repeated a later grade—fifth through eighth grade—were almost 11 times as likely to drop out as those students who had never repeated these grades.

The association between at-risk status and prior academic performance shown in previous studies was supported by the NELS:88 data. When compared with "C" students, "A" students were about 60 percent and "B" students were about 40 percent less likely to perform below the basic proficiency levels. In terms of the simple odds ratios, students who had earned mostly "D"s since the sixth grade were about 50 percent more likely to perform below the basic proficiencies, and those who earned grades below a "D" were about twice as likely to perform below basic levels. In addition, "D" students were more than two and one-half times as likely to drop out as "C" students. The amount of homework done was also associated with poor performance on the achievement tests. Students who spent between 0.5 and 3 hours on their homework each week were almost twice as likely to fail to achieve the basic math and reading proficiency levels and were more than twice as likely to drop out of school as were students who spent 10.5 hours per week on their homework (more than 2 hours per day). Even those students who spent between 3 and 5.5 hours on their homework were more than one and one-half times as likely to perform below the basic levels and to drop out as were those students who spent more than 10.5 hours.

Not surprisingly, learning problems, emotional problems, and participation in special education programs for students with learning disabilities were all associated with an increased risk of performing below the basic math and reading proficiency levels (table 5.1). In addition, students with these characteristics were far more likely to drop out of school between the 8th and 10th grades than were other students. For example, in terms of the simple odds ratios, students in special education were about two and a half times as likely to drop out, students with learning problems were more than three times as likely, and students with emotional problems were almost six times as likely to drop out as were other students.

---

[31]Finn, "Withdrawing from School," 1989.

[32]Cairns et al., "Configurations and Determinants," 1989; J.S. Catterall, "An Intensive Group Counseling Dropout Prevention Intervention: Some Cautions on Isolating At-Risk Adolescents within High Schools," *American Educational Research Journal* 24 (1987): 521–540; Finn, "Withdrawing from School," 1989; Rumberger, "A Review of Issues and Evidence," 1987; Ekstrom et al., "Who Drops Out and Why?" 1989.

Table 5.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by academic characteristics

Variable	Below basic mathematics	Below basic reading	Dropped out
Repeated any grades K through 4			
Yes vs. no	2.69**	3.00**	5.02**
Repeated any grades 5 through 8			
Yes vs. no	3.03**	3.21**	11.13**
English grades since 6th grade			
Mostly As vs. Cs	0.37**	0.36**	0.26**
Mostly Bs vs. Cs	0.58**	0.63**	0.36**
Mostly Ds vs. Cs	1.49**	1.47**	2.56**
Mostly below D vs. Cs	2.13**	2.03**	1.51
Math grades since 6th grade			
Mostly As vs. Cs	0.32**	0.52**	0.35**
Mostly Bs vs. Cs	0.55**	0.70**	0.55**
Mostly Ds vs. Cs	1.62**	1.43**	3.11**
Mostly below D vs. Cs	2.39**	2.00**	3.61**
Hours of homework per week			
None vs. more than 10.5 hours	4.25**	3.23**	10.62**
.5 to < 3 hours vs. more than 10.5 hours	1.88**	1.81**	2.22**
3 to < 5.5 hours vs. more than 10.5 hours	1.62**	1.57**	1.87*
5.5 to < 10.5 hours vs. more than 10.5 hours	1.21*	1.47**	1.50

See footnote at end of table.

Table 5.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by academic characteristics—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Has learning problem			
Yes vs. no	3.51**	3.62**	3.20**
Has emotional problem			
Yes vs. no	2.18**	1.88**	5.80**
In special education			
Yes vs. no	5.28**	5.09**	2.42**
Attends remedial English			
Yes vs. no	1.57**	1.67**	1.17
Mathematics class			
Remedial vs. regular	3.04**	2.69**	2.87**
Algebra vs. regular	0.40**	0.52**	0.45**
Student seen by others as:			
A very good vs. a somewhat good student	0.64**	0.70**	0.67*
Not at all a good student vs. a somewhat good student	1.99**	1.62**	3.77**
How sure will graduate from HS:			
Very sure vs. probably sure	0.44**	0.44**	0.29**
Probably will not vs. probably sure	2.46**	2.11**	8.79**
Postsecondary education plans			
Less than HS diploma vs. HS diploma only	2.41**	1.76**	5.13**
Some college vs. HS diploma only	0.73**	0.71**	0.55**
4-year college vs. HS diploma only	0.33**	0.32**	0.21**
Postcollege vs. HS diploma only	0.25**	0.24**	0.13**

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Also not surprisingly, students enrolled in remedial classes were more likely to perform below the basic proficiency levels in both math and reading. Specifically, those enrolled in remedial English were about one and one-half times as likely to perform below the basic levels in both math and reading as other students. However, in terms of the simple odds ratios, students enrolled in remedial math classes were three times as likely to perform below the basic math level, and more than two and a half times as likely to perform below the basic reading level as those enrolled in regular math classes. These remedial math students were also nearly three times as likely to drop out as were students enrolled in regular math classes.

Those with greater amounts of confidence in their abilities as a student and with plans for an educational future beyond high school graduation were less likely to perform below the basic proficiency levels and were also less likely to drop out than their less confident peers. For example, compared with students who stated that their classmates saw them as "somewhat" of a good student, those who indicated that other students did not see them as very good students were almost twice as likely to perform below the basic math proficiency level, more than one and one-half times as likely to perform below the basic reading level, and almost four times as likely to drop out.[33] Similarly, eighth-grade students who felt that they probably would not graduate from high school were more than twice as likely (in terms of the simple odds ratios) to perform below the basic proficiency levels and almost nine times as likely to drop out as those who were more confident of their eventual high school graduation.

Results: Multivariate Odds Ratios

With few exceptions, the relationships seen between proficiency in basic skills and dropout status and the variables gauging students' academic histories and characteristics were not dependent upon the students' socioeconomic status, race–ethnicity, or sex. After adjusting for the basic demographic variables, very few significant changes occurred, indicating that most of these relationships were consistent across SES levels, among racial–ethnic categories, and between the sexes. Exceptions included repetition of grades, hours spent on homework, and participation in special education programs.

After adjusting for SES, race–ethnicity, and sex, the relative risk of students who had repeated grades decreased. However, in terms of the adjusted odds ratios, these students were still more than twice as likely to perform below the basic math and reading proficiency levels than were their peers who had not repeated a previous grade (table 5.2). Students who had repeated a grade between kindergarten and fourth grade were still almost three times more likely to drop out; students who had repeated a later grade were almost seven times more likely to drop out.

Similarly, students who spent little time on their homework were still more likely to have poor student outcomes than students who spent, on average, little more than 2 hours per day on their assignments. Compared with students who spent 10.5 hours per week or more, students who did not do any homework were more than three times more likely to perform below the basic math level, about two times more likely to perform below the basic reading level, and eight times more likely to drop out of school. In terms of the adjusted odds ratios, students who spent some time on their homework, but less than 3 hours, were still about 50 percent more likely to perform below the basic proficiency levels and were 72 percent more likely to drop out.

---

[33]Students chose one of the following responses—"very, somewhat, or not at all"—in response to the specific question: "Other students in class see you as a good student." This question was included within a series of questions entitled, "How do you think other students in your classes see you?"

Summary

As expected, students' prior educational performance was associated with how they performed on achievement tests in the eighth grade. Students with a history of poor academic achievement were also more likely to drop out of school between the 8th and the 10th grades. These relationships were consistent after holding constant the student's sex, race–ethnicity, and socioeconomic status. Students with a history of poor grades in mathematics and English, who did little or no homework, or who had repeated an earlier grade were more likely to be at risk of school failure. Students with special needs—those with a learning or emotional problem or who attended special education classes—were also more at risk than were other students.

Table 5.2—Adjusted odds ratios† of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by academic characteristics

Variable	Below basic mathematics	Below basic reading	Dropped out
Repeated any grades K through 4			
Yes vs. no	2.15**	2.35**	2.73**
Repeated any grades 5 through 8			
Yes vs. no	2.37**	2.43**	6.69**
English grades since 6th grade			
Mostly As vs. Cs	0.44**	0.45**	0.33**
Mostly Bs vs. Cs	0.63**	0.69**	0.41**
Mostly Ds vs. Cs	1.37**	1.33**	2.39**
Mostly below D vs. Cs	2.01**	1.83**	1.42
Math grades since 6th grade			
Mostly As vs. Cs	0.36**	0.60**	0.42**
Mostly Bs vs. Cs	0.59**	0.78**	0.63*
Mostly Ds vs. Cs	1.52**	1.32**	2.91**
Mostly below D vs. Cs	2.23**	1.84**	3.45**
Hours of homework per week			
None vs. more than 10.5 hours	3.25**	2.35**	8.14**
.5 to < 3 hours vs. more than 10.5 hours	1.60**	1.51**	1.72*
3 to < 5.5 hours vs. more than 10.5 hours	1.39**	1.33**	1.53
5.5 to < 10.5 hours vs. more than 10.5 hours	1.11	1.35**	1.33
Has learning problem			
Yes vs. no	3.57**	3.69**	3.17**
Has emotional problem			
Yes vs. no	2.01**	1.71**	5.44**
In special education			
Yes vs. no	4.88**	4.64**	2.01**
Attends remedial English			
Yes vs. no	1.50**	1.58**	1.09
Mathematics class			
Remedial vs. regular	2.76**	2.32**	2.48**
Algebra vs. regular	0.46**	0.61**	0.59*

See footnote at end of table.

Table 5.2—Adjusted odds ratios† of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by academic characteristics—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Student seen by others as:			
A very good vs. a somewhat good student	0.66**	0.73**	0.71
Not at all a good student vs. a somewhat good student	1.91**	1.51**	3.43**
How sure will graduate from HS:			
Very sure vs. probably sure	0.52**	0.53**	0.38**
Probably will not vs. probably sure	2.28**	1.95**	8.34**
Postsecondary education plans			
Less than HS diploma vs. HS diploma only	2.35**	1.68**	5.68**
Some college vs. HS diploma only	0.77**	0.74**	0.65*
4-year college vs. HS diploma only	0.40**	0.40**	0.34**
Postcollege vs. HS diploma only	0.33**	0.33**	0.25**

† Odds ratios after controlling for the student's socioeconomic status, race-ethnicity, and sex.

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Chapter 6

Student Behaviors

At-risk students have been shown to exhibit more aggressive behavior than their non-at-risk counterparts.[34] In their study of Mexican-American and white at-risk students, Chavez, Edwards, and Oetting noted that many students who fail in school "live in a violent and dangerous world," as evidenced by the large differences found between at-risk students and their non-at-risk counterparts in relation to their experiences as both victims and perpetrators of violent crime. Several researchers have observed that at-risk students are more likely to encounter problems with both legal and school authorities. Delinquency, truancy, suspension, and expulsion are all observed more frequently among at-risk students.[35]

Barrington and Hendricks found, in their longitudinal study, that fifth-grade at-risk students attended school significantly less often than did students who succeeded in school. Moreover, Binkley and Hooper discovered that attendance rates differed substantially between at-risk and non-at-risk students: at-risk students' attendance rates averaged 80 percent, while those for non-at-risk students averaged 92 percent. Farrell and his colleagues speculated that students' disengagement from the educational process had less to do with disinterest in learning than with a self-protective disengagement from a system in which they had consistently been unable to earn scarce rewards.[36]

Researchers have examined illegal drug and alcohol use and have found different patterns of use among male and female at-risk students. Although use of alcohol did not differentiate at-risk from non-at-risk students, Mensch and Kandel found that non-at-risk students were more likely to use illegal substances only on an experimental basis, whereas among at-risk students, there was more lifetime or annual illegal substance use and greater intensity of such use than among non-at-risk students.[37] Moreover, it has been found that the earlier a child begins using most substances (tobacco among males is an exception), the greater the risk of school failure. For boys, using drugs that are "more illicit" (for example, cocaine as opposed to marijuana) increased the risk of school failure. For girls, smoking tobacco or marijuana were stronger predictors of failure than for boys, although the time when the substance abuse began was less important for girls than for boys. Unlike Mensch and Kandel, Chavez and his colleagues found greater use of alcohol among dropouts and at-risk students than among control students.

There were a number of variables in the NELS:88 data set that measured these types of student behaviors. For example, several variables provide measures of the priority students gave to their classwork: whether or not they came to class with the proper materials, how often they came to class late, and how often they cut class. Although the base year of the NELS:88 data set does not provide information on students' use of drugs and alcohol, students were asked

---

[34]Cairns et al., "Configurations and Determinants," 1989; Lopez, "Why do They Leave?" 1990.

[35]Binkley and Hooper, "Statistical Profile," 1989; Ekstrom et al., "Who Drops Out and Why?" 1989; Fine, "Why Urban Adolescents Drop Into and Out of School," 1987; Finn, "Withdrawing from School," 1989; D. Mann, "Can We Help Dropouts? Thinking about the Undoable," in G. Natriello's *School Dropouts: Patterns and Policies* (1987); Rumberger, "A Review of Issues and Evidence," 1987.

[36]Barrington and Hendricks, "Differentiating Characteristics," 1989; Binkley and Hooper, "Statistical Profile," 1989; E. Farrell, G. Peguero, R. Lindsey, and R. White, "Giving Voice to High School Students: 'Pressure and Boredom, Ya Know What I'm Sayin'?'" *American Educational Research Journal* 25 (1988): 489–502.

[37]Mensch and Kandel, "Dropping Out and Drug Involvement," 1988.

whether they smoked cigarettes. The relationship between school outcomes and these student behaviors is examined in the following sections.

Results: Univariate Odds Ratios

In terms of the odds ratios, compared with students who always brought the necessary materials and their homework to class, students who usually came without pencil or paper or without their homework were over two and a half times more likely to perform below the basic math proficiency level, and about two and one-third times more likely to perform below the basic reading level (table 6.1). Similarly, in terms of the odds ratios, students who usually came to class without books were four times more likely to perform below the basic math level, and three and one-half times more likely to perform below the basic reading level than students who never came without their books. Students who usually came to class without these sets of materials (pencil and paper, books, or homework) were about four times more likely to drop out of school than students who never came without these materials.

These individual questions were combined into a summary variable designed to indicate the overall preparedness of students when coming to class. Examination of the results using the summary variable revealed, not surprisingly, that students who came to class prepared to learn were more likely to achieve the basic proficiency levels and were also less likely to drop out. In terms of the odds ratios, compared with students who were always prepared, students who were usually unprepared were about four to four and one-half times more likely to perform below the basic levels and about nine times more likely to drop out. Furthermore, students who were often unprepared were about twice as likely to perform below the basic proficiency levels and more than three and one-half times as likely to drop out as those who were never unprepared.

Students who were frequently absent or tardy, or who frequently cut classes were also more likely to fail at school. In terms of the odds ratios, students who were absent three or four days in the month before taking the NELS survey were almost one and a half times more likely to perform below the basic math and reading levels and nearly three times more likely to drop out than students who missed no days. Students who missed five days or more were almost twice as likely to perform below the basic math level, about one and a half times as likely to perform below the basic reading level, and more than six times as likely to drop out, compared with students who never missed school.

Skipping class also increased students' likelihood of having poor educational outcomes: compared with students who never cut class, students who reported that they occasionally cut (less than once per week) were twice as likely to perform below the basic proficiency level in math and more than one and a half times as likely to do so in reading. In terms of the odds ratios, students who cut class more frequently further increased their likelihood of performing below level. For example, students who cut class once a week or more were three and one-half times more likely to perform below the basic math level and were almost three times more likely to perform below the basic reading level, compared with students who never skipped class. In general, the more times students were tardy to class, the more they increased their risk of performing below the basic proficiency levels and of dropping out. Students who were tardy three or four times in the month before taking the NELS survey were about one and a half times more likely to perform below both the basic math and reading proficiency levels and were twice as likely to drop out, compared with students who reported that they were never tardy. Students who were tardy at least 10 times in the past month were about three times more likely to perform below the basic proficiency levels, and were about seven times more likely to drop out of school.

Students who were sent to the office for misbehaving during the first semester of school were about twice as likely to perform below the basic proficiency levels in both math and

reading, and they were more than three and one-half times more likely to drop out than students who had not been sent to the office. Furthermore, in terms of the odds ratios, students who had been sent to the office more than twice in one semester were more than three times as likely to fail to achieve the basic math proficiency level, about two and one-half times as likely to perform below the basic reading level, and almost seven and a half times as likely to drop out.

Smokers were also more likely to be at risk than nonsmokers. For example, student smokers were twice as likely to perform below the basic math level as nonsmokers and were more than one and a half times as likely to perform below the basic reading level. Furthermore, smokers were seven and one-half times more likely than nonsmokers to drop out of school.

Table 6.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by student behaviors

Variable	Below basic mathematics	Below basic reading	Dropped out
Comes w/o pencil/paper			
Usually vs. never	2.70**	2.35**	4.08**
Often vs. never	1.45**	1.44**	1.34
Seldom vs. never	0.88*	0.76**	1.17
Comes w/o books			
Usually vs. never	4.10**	3.49**	3.90**
Often vs. never	2.43**	2.22**	3.08**
Seldom vs. never	0.93	0.82**	1.10
Comes w/o homework			
Usually vs. never	2.80**	2.41**	4.58**
Often vs. never	1.72**	1.39**	3.18**
Seldom vs. never	0.97	0.82**	1.52**
Comes unprepared			
Usually vs. never	4.63**	3.96**	9.32**
Often vs. never	2.25**	1.84**	3.71**
Seldom vs. never	1.08	0.90	1.91**
Days missed last month			
1–2 vs. none	1.05	0.99	1.25
3–4 vs. none	1.48**	1.33**	2.98**
5 or more vs. none	1.93**	1.55**	6.38**
How often cuts class			
Less than once/wk vs. never	2.01**	1.62**	2.44**
Once/wk or more vs. never	3.62**	2.82**	6.44**
Smoking habits			
Does not smoke vs. smokes	2.17**	1.67**	7.54**
Days tardy last month			
1–2 vs. none	1.30**	1.27**	1.72**
3–4 vs. none	1.63**	1.55**	2.01**
5–10 vs. none	2.40**	1.87**	6.48**
10 or more vs. none	3.28**	3.01**	6.94**

See footnote at end of table.

Table 6.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by student behaviors—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Sent to office for misbehaving			
Once or twice vs. never	2.06**	1.92**	3.70**
More than twice vs. never	3.28**	2.56**	7.48**

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow–Up" surveys.

Results: Multivariate Odds Ratios

After keeping SES, race–ethnicity, and sex constant, students who came to class unprepared were more likely to be at risk (table 6.2). In terms of the adjusted odds ratios, compared with students who were never unprepared, students who were often unprepared were about twice as likely to perform below the basic math proficiency level, more than one and a half times as likely to perform below the basic reading proficiency level, and more than three times as likely to drop out. In addition, students who were usually unprepared were more than three and one-half times as likely to perform below the basic math level, about three times more likely to perform below the basic reading level, and more than eight times more likely to drop out of school than students who were always prepared.

After holding basic demographic variables constant, students who missed school, either because they missed whole days or they cut particular classes, were more likely to have poor student outcomes than those who came to class more regularly. In terms of the adjusted odds ratios, compared with those who did not miss any days of school, students who missed 5 or more days in a month were 77 percent more likely to perform below the basic math proficiency level and 41 percent more likely to perform below the basic reading proficiency level. Furthermore, they were almost six times more likely to drop out of school. Students who cut classes were also more likely to perform below the basic proficiency levels than those who did not. For example, students who cut class once a week or more were three times as likely to perform below the basic math level and more than twice as likely to perform below the basic reading level as students who never cut class. Furthermore, students who skipped class frequently were more than six times as likely to drop out as those who did not skip. Even students who skipped less than once a week were more than twice as likely to drop out as students who had never done so.

Student misbehaviors—tardiness, smoking, or any misconduct that requires being sent to the office—were all associated with poor student outcomes, even after controlling for SES, race–ethnicity, and sex. For example, in terms of the adjusted odds ratios, students who had been sent to the office once or twice in the previous semester were 82 percent more likely to perform below the basic math level, and were 59 percent more likely to perform below the basic reading level than students who had not been sent to the office. Students who had been sent to the office more

than twice in the previous month were more than six and one-half times as likely to drop out as their peers who had never been tardy or been sent to the office.

Table 6.2—Adjusted odds ratios† of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by student behaviors

Variable	Below basic mathematics	Below basic reading	Dropped out
Comes w/o pencil/paper			
Usually vs. never	2.42**	2.02**	3.79**
Often vs. never	1.40**	1.36**	1.34
Seldom vs. never	0.91	0.77**	1.23
Comes w/o books			
Usually vs. never	3.47**	2.78**	3.03**
Often vs. never	2.19**	1.94**	2.55**
Seldom vs. never	0.98	0.87*	1.18*
Comes w/o homework			
Usually vs. never	2.46**	2.06**	3.79**
Often vs. never	1.59**	1.26**	2.77**
Seldom vs. never	0.98	0.84*	1.54**
Comes unprepared			
Usually vs. never	3.77**	3.05**	8.38**
Often vs. never	2.10**	1.65**	3.27**
Seldom vs. never	1.08	0.90	1.92**
Days missed last month			
1–2 vs. none	1.06	1.02	1.26
3–4 vs. none	1.40**	1.27**	2.97**
5 or more vs. none	1.77**	1.41**	5.76**
How often cuts class			
Less than once/wk vs. never	1.88**	1.48**	2.24**
Once/wk or more vs. never	3.09**	2.30**	6.18**

See footnote at end of table.

Table 6.2—Adjusted odds ratios† of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by student behaviors—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Smoking habits			
Does not smoke vs. smokes	2.15**	1.66**	7.85**
Days tardy last month			
1–2 vs. none	1.24**	1.19**	1.66**
3–4 vs. none	1.46**	1.36**	1.99**
5–10 vs. none	2.14**	1.65**	6.67**
10 or more vs. none	2.61**	2.31**	6.75**
Sent to office for misbehaving			
Once or twice vs. never	1.82**	1.59**	3.50**
More than twice vs. never	2.73**	1.94**	6.52**

† Odds ratios after controlling for the student's socioeconomic status, race–ethnicity, and sex.

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow–Up" surveys.

Summary

School failure typically does not happen in a single day or year, but is a culmination of a gradual process of school disengagement over time. Poor attendance, cutting class, disruptive behaviors, and other actions are part of a cluster of student behaviors that indicate the student's disinterest in school. These behaviors are a part of the process that may eventually lead to poor achievement, early school withdrawal, or both.

In this report, several self-reported student behaviors in the eighth-grade were associated with school failure in the middle grades. After holding constant sex, race–ethnicity, and socioeconomic status, students who regularly came to school unprepared, who cut classes, who were frequently tardy or absent, or who smoked regularly were more likely than other students to score below basic proficiency levels in mathematics and reading and to drop out between the 8th and the 10th grades. Furthermore, students who were often sent to the office for misbehavior were also more likely to have poor school outcomes.

Chapter 7

Teacher Perceptions

In many instances, one would expect that the person best able to judge whether a student was "at risk" would be the student's teacher. For example, Kagan, in her study of elementary teachers' identification of potentially at-risk students, found that teachers could reliably identify at-risk students with scores on standardized tests, descriptions of the student's home environment, and classroom behaviors reflecting aggression or withdrawal.[38]

However, research has also shown that teacher perceptions themselves can be powerful influences on student outcomes.[39] Studies of teacher expectation effects indicate that past perceptions of student behaviors and achievement can lead to current expectations of student behavior or achievement. These expectations can then be communicated to the student through the teacher's interaction with the student, resulting in student behavior and achievement that may eventually conform with these teacher expectations—the familiar "self-fulfilling prophecy."

Although teachers surveyed in NELS:88 were not asked to categorize students as being at risk, they were asked to identify those sampled students who were performing below their ability level, who were frequently absent or tardy, or who were inattentive—characteristics that are usually used to define those who are at risk of school failure. Relationships between poor educational outcomes and these student characteristics—as perceived by the students' teachers—are described in the section below.

Results: Univariate Odds Ratios

In terms of the simple odds ratios, students who were recalled by their teachers as being frequently absent and those who were thought of as passive were more than one and a half times as likely as other students to perform below the basic proficiency levels on both the math and reading achievement tests (table 7.1). Students who were rated as frequently disruptive were about twice as likely as other students to perform below the basic proficiency levels. Furthermore, students whose teachers stated that they did not apply themselves in class were at risk of poor student performance. Specifically, students whose teachers felt that they were inattentive, frequently tardy to class, performing below ability, and rarely completing their assigned homework were about three times as likely as other students to perform below the basic math proficiency level, and more than twice as likely to perform below the basic proficiency level in reading.

Teacher perceptions of student behaviors were also associated with dropping out of school. Those students who teachers felt were inattentive or performing below ability were about four times more likely to drop out than those who teachers felt paid attention or performed up to their potential. In addition, students who, according to their teachers, rarely completed their homework were almost five times more likely than those who completed their homework to drop out. In terms of the simple odds ratios, students who were reported by their teachers as being frequently tardy were more than five times as likely as other students to drop out, and those who were reported as being frequently absent were seven times more likely to drop out.

---

[38]D. Kagan, "How Do Teachers Define Students At-Risk?" *The Clearing House* 61 (March 1988): 320–324.
[39]For a review, see J. Dusek, *Teacher Expectations* (London: Lawrence Erlbaum Associates, 1985).

Table 7.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by teacher perceptions

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is passive			
Yes vs. no	1.67**	1.55**	2.15**
Student is frequently disruptive			
Yes vs. no	2.27**	1.98**	2.59**
Student is inattentive			
Yes vs. no	2.78**	2.24**	3.79**
Student performs below ability			
Yes vs. no	2.87**	2.25**	4.09**
Student rarely completes homework			
Yes vs. no	3.02**	2.39**	4.81**
Student is frequently tardy			
Yes vs. no	2.87**	2.39**	5.23**
Student is frequently absent			
Yes vs. no	1.85**	1.63**	7.04**

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow–Up" surveys.

Results: Multivariate Odds Ratios

Because the variables discussed above may have some relationship to socioeconomic status, race–ethnicity, or sex (in other words, students of lower SES may be perceived to be more disruptive than students of high SES, or males may be remembered as being more absent from class than females), the increased likelihood of some of these students to be at risk may be due in part to their SES or sex, rather than their perceived characteristics. Table 7.2 presents the odds ratios for these same factors adjusted for socioeconomic status, race–ethnicity, and sex.

In terms of the adjusted odds ratios, students who were seen by their teachers as being passive were about 50 percent more likely than other students to perform below the basic math level and about 35 percent more likely to perform below the basic reading level, after adjusting for SES, race–ethnicity, and sex. Students who teachers felt were disruptive were almost twice as likely to perform below the basic math level, and were more than one and one-half times as

likely to perform below the basic reading level. After adjusting for basic demographics, the students who were frequently absent from class were about one and one-half times more likely than others to perform below the basic levels on both the math and reading tests.

Holding SES, race–ethnicity and sex constant, students who were inattentive or frequently tardy were more than twice as likely as those without these characteristics to perform below the basic math level, and slightly less than twice as likely to perform below the basic reading level. Similarly, after adjusting for basic demographics, students who teachers said were performing below their ability and rarely completing their homework were almost two and one-half times more likely to perform below the basic math level and more than one and three-quarters times as likely to perform below the basic level in reading.

After holding SES, race–ethnicity, and sex constant, students who teachers felt performed below ability and those who were frequently tardy were more than three times as likely in terms of odds as others to drop out of school; those who were frequently absent were almost five times as likely as others to drop out. Students noted by their teachers as rarely completing their homework were almost six times more likely to drop out. After keeping basic demographics constant, students who were remembered as being frequently disruptive were more than eight times as likely to drop out as their non-disruptive peers.

Table 7.2—Adjusted odds ratios† of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by teacher perceptions

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is passive			
Yes vs. no	1.48**	1.35**	2.42*
Student is frequently disruptive			
Yes vs. no	1.94**	1.60**	8.37**
Student is inattentive			
Yes vs. no	2.38**	1.82**	1.90**
Student performs below ability			
Yes vs. no	2.46**	1.84**	3.11**
Student rarely completes homework			
Yes vs. no	2.49**	1.84**	5.82**
Student is frequently tardy			
Yes vs. no	2.29**	1.83**	3.25**
Student is frequently absent			
Yes vs. no	1.63**	1.43**	4.87**

† Odds ratios after controlling for the student's socioeconomic status, race–ethnicity, and sex.

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Summary

While teachers in the NELS:88 Base Year Survey were not asked to specifically identify at-risk students, their perceptions of the student closely corresponded with the student's at-risk status. Students who teachers characterized as passive, frequently disruptive, inattentive, or performing below their ability level were more likely to have poor educational outcomes. Students who were reported by their teachers as being frequently tardy, absent, or as often failing to complete homework, were also more likely to have poor basic skills and to drop out.

Chapter 8

School Environment

Ekstrom and Mann found that students who live in a large city are at greater educational risk than students in rural communities.[40] Moreover, Fine found that at-risk students tend to be clustered in the same schools. This clustering contributes to continued failure due to proportionally lower funding levels in schools where students more often take half-credit remedial courses or need extra help from counselors, teachers, and aides, as well as due to low morale among staff members. Fine cited a 1985 survey that showed that two-thirds of the teachers in the school under study felt that the staff and school administrators took little interest in their work in the classroom. Fine also noted that the school she studied was extremely overcrowded—its student population represented 144 percent of its capacity. Finally, Fine identified the ethnic composition of the school's staff as a contributing factor to its limited success in graduating students. Although the student population consisted primarily of black and Hispanic students, the school's administrative staff was all white, its teaching staff was mostly white with some Hispanics and a few blacks, and most of the teaching aides were black women who received low pay and little respect for their work. Fine believed the social stratification of the school did little to encourage students' wavering belief in the power of education to overcome the barrier of poverty.[41]

Results: Univariate Odds Ratios

In terms of the simple odds ratios, eighth graders in 1988 who attended urban schools were 24 percent more likely to perform below the basic math level and 40 percent more likely to perform below the basic reading level than students who attended suburban eighth grade schools (table 8.1). Urban students were also 62 percent more likely to drop out of school than their suburban counterparts.

Students who attended schools where the student body was largely minority (more than 20 percent minority) and poor were more likely to perform below the basic proficiency levels and were also more likely to drop out, when compared with students who attended schools populated by mostly white students and where few students qualified for the federal government's free or reduced lunch program. For example, in terms of the simple odds ratios, compared with students attending schools with a small minority population (0 percent to 5 percent), students from schools with a 21 percent to 40 percent minority population were about one-third more likely to perform below the basic math and reading proficiency levels; students attending schools with a minority population of over 60 percent were more than two and a quarter times more likely to perform below the basic proficiency levels and almost three and a half times more likely to drop out.

In general, a similar relationship was found when examining student performance and the proportion of poor students in the schools the students attended (as measured by the percentage of students within the schools receiving free or reduced lunches). For example, compared with students attending schools where none of the students were poor, students from schools where 11 percent to 30 percent of the students were poor were about 51 percent more likely to perform below the basic proficiency levels; students attending schools where more than 75 percent of the

[40]Ekstrom et al., "Who Drops Out and Why?" 1989; Mann, "Can we Help Dropouts?" 1987.
[41]Fine, "Why Urban Adolescents Drop Into and Out of School," 1987.

students were poor were more than three and one-half times as likely to perform below the basic levels and more than seven times as likely to drop out.

A number of composite variables were created from the NELS:88 school administrator questionnaire. These variables measured school discipline problems, level of teacher engagement, academic pressure placed on the students, security measures undertaken by the school, and the level of discipline and control that the school sought to impose on the students and their learning environment.[42] Perhaps not surprisingly, in terms of the simple odds ratios, students from schools with fewer problems, fewer security measures (perhaps because of a smaller perception of need), greater teacher engagement, and higher academic expectations generally had better outcomes than did students from schools where the opposite was true.

Teacher engagement, which reflects teacher morale and teachers' relationships to both the student body and the administration, was related to student test performance (table 8.1). Students from schools with low teacher engagement were about 20 percent more likely than students from schools with moderate teacher engagement to perform below the basic level of proficiency on both the math and reading tests. Students attending schools where there was an unusually high emphasis on academics were about one-third less likely than their peers in schools with a moderate amount of academic emphasis to perform below the basic math level and were also about one-half as likely to drop out. Students attending schools with a low school security (those taking fewer overt steps to make the campus safe and secure) were about one-third less likely than students from schools with a moderate level of school security to perform below the basic proficiency levels; they were also about 60 percent less likely to drop out.

[42]For more detailed descriptions of these composite scale variables, see appendix A.

Table 8.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by school environment†

Variable	Below basic mathematics	Below basic reading	Dropped out
School size			
1–399 vs. 600–799	0.77**	0.85	1.04
400–599 vs. 600–799	0.95	1.01	1.09
800–1199 vs. 600–799	0.92	0.99	1.49
1200+ vs. 600–799	1.04	1.26	1.30
School urbanicity			
Urban vs. suburban	1.24**	1.40**	1.62*
Rural vs. suburban	1.09	1.06	1.46
Percent minority in school			
6–20 vs. 0–5	1.16	0.91	1.87*
21–40 vs. 0–5	1.34**	1.29**	1.67**
41–60 vs. 0–5	1.80**	1.61**	1.58*
61+ vs. 0–5	2.37**	2.40**	3.47**
Percent on free or reduced price lunch program			
1–10 vs. 0	1.18	1.15	2.89*
11–30 vs. 0	1.55**	1.51**	2.56**
31–74 vs. 0	2.25**	2.07**	3.79**
75+ vs. 0	3.39**	3.67**	7.34**
School problems			
Low vs. moderate	0.51**	0.60**	0.10**
High vs. moderate	1.50**	1.40**	1.79**
Teacher engagement			
Low vs. moderate	1.19*	1.19**	1.05
High vs. moderate	0.79*	0.72**	0.77
Academic press			
Low vs. moderate	1.19*	1.24**	1.21
High vs. moderate	0.65**	0.77**	0.53**
School security			
Low vs. moderate	0.77*	0.70**	0.43*
High vs. moderate	1.13	1.13	1.06

See footnotes at end of table.

Table 8.1—Odds ratios of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by school environment†—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
School discipline			
Low vs. moderate	1.14	1.20*	1.08
High vs. moderate	0.92	0.93	0.65
School reading level			
Low vs. moderate	2.39**	2.29**	1.69**
High vs. moderate	0.40**	0.40**	0.38
School math level			
Low vs. moderate	2.55**	2.10**	2.13**
High vs. moderate	0.43**	0.58**	0.32**
School combined math and reading level			
Low vs. moderate	2.47**	2.16**	2.20**
High vs. moderate	0.40**	0.49**	0.36*

† The environment of the student's eighth-grade school.

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Results: Multivariate Odds Ratios

Many of these school-level variables may also be associated with the student's demographic background. In terms of the adjusted odds ratios, minority students or students from low socioeconomic backgrounds are more likely to be found in large, urban schools, with higher percentages of minority students, poor students, or both. Consequently, any effect of these school-level variables on student outcomes may be confounded with the influence of the individual student's demographic background. Table 8.2, therefore, presents the odds ratios for the school-level variables controlling for student background characteristics.

Holding constant basic demographic characteristics, eighth-graders within schools with large minority populations (more than 61 percent) were over 50 percent more likely to have low basic skills in mathematics than were students in schools with low-minority populations (0 percent to 5 percent). In terms of the adjusted odds ratios, students in high-minority schools were also 30 percent more likely to have low basic skills in reading and were over two and one-half times more likely to be dropouts by the 10th grade. Students in schools with a high degree of emphasis on academics were *less* likely than other students to have low basic skills. Eighth-graders in these schools were 27 percent less likely to have low mathematics skills and were 13

percent less likely to have low reading skills. There was no significant increase or decrease in the dropout rates in schools that put a relatively high emphasis on academics.

Students from relatively low-achieving schools—those schools at the lower quartile of achievement in mathematics and reading—were more likely themselves to be low achieving. Compared with students in schools with moderate overall levels of achievement in mathematics, students in low-achieving schools were twice as likely to be below basic proficiency levels in mathematics and 45 percent more likely to be below the basic level in reading. Students from high-achieving schools were about 53 percent less likely to be dropouts than students from schools with a moderate level of math achievement.

Table 8.2—Adjusted odds ratios[1] of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by school environment[2]

Variable	Below basic mathematics	Below basic reading	Dropped out
School size			
1–399 vs. 600–799	0.81*	0.92	1.04
400–599 vs. 600–799	0.95	1.01	1.08
800–1,199 vs. 600–799	0.88	0.95	1.49
1,200+ vs. 600–799	0.97	1.16	1.26
School urbanicity			
Urban vs. suburban	0.97	1.05	1.29
Rural vs. suburban	0.91	0.88	0.99
Percent minority in school			
6–20 vs. 0–5	1.19*	0.89	2.15**
21–40 vs. 0–5	1.19*	1.07	1.73**
41–60 vs. 0–5	1.38**	1.12	1.35
61+ vs. 0–5	1.52**	1.30**	2.71**
Percent on free or reduced price lunch program			
1–10 vs. 0	1.10	1.07	2.46**
11–30 vs. 0	1.20	1.14	1.60
31–74 vs. 0	1.38**	1.18	1.70
75+ vs. 0	1.57**	1.51**	2.55**

See footnotes at end of table.

Table 8.2—Adjusted odds ratios[1] of eighth-grade students in 1988 performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990, by school environment[2]—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
School problems			
Low vs. moderate	0.61*	0.74	0.14**
High vs. moderate	1.25**	1.14*	1.37
Teacher engagement			
Low vs. moderate	1.12	1.11	0.90
High vs. moderate	0.95	0.88	1.01
Academic press			
Low vs. moderate	1.05	1.09	0.97
High vs. moderate	0.73**	0.87*	0.64
School security			
Low vs. moderate	0.86	0.79*	0.50*
High vs. moderate	1.05	1.03	1.04
School discipline			
Low vs. moderate	1.03	1.08	0.91
High vs. moderate	0.90	0.90	0.63
School reading level			
Low vs. moderate	1.85**	1.65**	1.12
High vs. moderate	0.50**	0.52**	0.68
School math level			
Low vs. moderate	2.01**	1.45**	1.44
High vs. moderate	0.51**	0.77**	0.47**
School combined math and reading level			
Low vs. moderate	1.93**	1.51**	1.48*
High vs. moderate	0.49**	0.65**	0.59

1 Odds ratios after controlling for the student's socioeconomic status, race–ethnicity, and sex.
2 The environment of the student's eighth grade school.

NOTE: * indicates that the odds compared with the reference group are statistically significant at .05 level; ** at .01 level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Summary

There is a great body of literature on the effects of the characteristics of schools on educational outcomes. This chapter examined several school-level variables that were associated with student's at-risk status that were independent of the student's demographic characteristics.[43] For example, after controlling for basic demographic characteristics, eighth-graders who attended schools with large minority populations or attended schools with a higher incidence of school problems were more likely to have poor school outcomes. Furthermore, after controlling for students' demographic characteristics, eighth-graders in schools that put a greater emphasis on academic achievement were less likely than students from other schools to perform below basic proficiency levels in mathematics and reading. However, more emphasis on academics did not seem to have an impact (either positive or negative) on the student's likelihood of dropping out.

---

[43]The methodology employed in this analysis is not the most appropriate for studying school effects. These effects are hierarchical in nature, with students nested within classrooms that are then nested within schools. This school effects' process requires special methods to adequately model its complex variance structure. For more information, see S. Raudenbush and A. Bryk, "A Hierarchical Model for Studying School Effects," *Sociology of Education* (1987).

Chapter 9

Discussion

This report, using data from the NELS:88 Base Year and First Follow-Up Surveys, presented factors that are associated with students being at risk for school failure—either by failing to learn in school or by dropping out of school altogether. Many of the basic demographic factors taken one at a time followed well-known patterns. For example, black, Hispanic, and Native American students were more likely to be at risk of school failure than were white students. However, after controlling for sex and SES level, minority students were no more likely to drop out of school than were white students. In contrast, even after controlling for these variables, Hispanic, black, and Native American students were more likely than white students to have low basic skills.

Other variables also had an association with students being at risk for school failure. Controlling for basic demographic characteristics, the following groups of students were found to be more likely, in terms of the odds ratios, to have poor basic skills in the 8th grade and to have dropped out between the 8th and the 10th grades:

- Students from single-parent families, students who were overage for their peer group, or students who had frequently changed schools;
- Eighth-graders whose parents were not actively involved in the student's school, students whose parents never talked to them about school-related matters, or students whose parents held low expectations for their child's future educational attainment;
- Students who repeated an earlier grade, students who had histories of poor grades in mathematics and English, or students who did little homework;
- Eighth-graders who often came to school unprepared for classwork, who frequently cut class, or students who were otherwise frequently tardy or absent from school;
- Eighth-graders whose teachers thought they were passive, frequently disruptive, inattentive, or students whose teachers thought they were underachievers; and
- Students from schools with large minority populations.

It is important to keep in mind that while many of the risk factors examined in this report were associated with the three measures of school failure, it is not possible to say with any certainty whether these risk factors "caused" school failure. For example, it is difficult to determine with these data whether parental expectations preceded or followed the student's poor performance in school. Low expectations may be based on a realistic assessment of the student's educational and behavioral performance. In addition, students who are now overage may have performed less ably than other students in the past and were, thus, retained in grade. Grade retention itself may not have caused the later poor performance but may be only associated with prior (and continued) poor performance.

Regardless of whether school failure was caused by these risk factors, this list of factors nevertheless provides researchers and policy analysts with an initial look at the characteristics of eighth-grade students who are likely to leave school academically disadvantaged—by either leaving school prematurely, or by leaving school on time, but with poor academic skills.

However, while a wide variety of variables were examined in this analysis, there still may be other factors linked to school failure that are associated with the student's community or school experiences that were not examined here. This analysis makes no claim to exhaust the potential of the NELS:88 database for exploring issues related to at-risk youth.

Furthermore, while multivariate techniques were used in this analysis to control for the student's sex, race–ethnicity, and socioeconomic status, the basic purpose of this report has remained descriptive. That is, the purpose of the report has been to describe the relative association of several at-risk factors independent of the student's basic demographic characteristics. While a formal model of the educational attainment process was implicit in the manner in which the data were presented in this report, no formal test of this model was conducted here. Such an analysis might determine the relative importance of sets of at-risk factors (for example, whether family background characteristics are more or less important than school characteristics in determining at-risk status).[44]

Moreover, it is possible that different combinations of risk factors may lead students to be especially at risk. That is, there may be interactions among the risk factors examined in this analysis that were not uncovered in this report due to the methods chosen to analyze, present, and interpret the data. For example, it is possible that coming from a single-parent family has a more deleterious effect on the educational outcomes of low-socioeconomic students than it has on high-socioeconomic students.[45] These two at-risk factors (single-parent family and low-SES background) in combination might have a larger effect than the cumulative influence of each in isolation. However, by choosing in this report to examine a wide variety of variables, it was difficult to conduct an in-depth analysis of all the possible combinations of variables. Discovering which combinations of factors put students most at risk and/or determining the relative importance of family, school, and community at-risk factors remains a subject for further research using the NELS:88 database. Further analyses of the NELS:88 Base Year and First Follow-Up data should provide additional insights into the nature of the at-risk population.

---

[44]A danger of such an analysis is overcontrolling; that is, with 50 or more variables in the equation, simple interpretation of the impact of any single variable becomes difficult.

[45]Milne, Myers, Rosenthal, and Ginsburg, in their study of achievement and test scores using data from the Sustaining Effects Study of Tittle I and the High School and Beyond Study, found that the negative effects of living in a single-parent family were almost entirely mediated by other factors, particularly family income.

Appendix A

Data and Methodology

Data

Estimates in this analysis were based on the eighth graders surveyed in the National Education Longitudinal Study (NELS:88). The estimates in tables 2.1, 2.2, and 2.3 were based on the entire student sample in the base-year survey (24,599 students). The estimates in subsequent tables were based on the students who had parent data (22,651 students). Consequently, there may be a slight bias in the ratios reported in the tables of chapters 3 through 8 due to the fact that students whose parents did not return a questionnaire were more likely to have low basic skills and to have dropped out (table A1). This bias should result in an underreporting of the size of differences between some subgroups.

Table A1—Percentage of all sampled students and students with parent data performing below basic levels of reading and mathematics in 1988 and dropping out of school, 1988 to 1990

Variable	Below basic mathematics	Below basic reading	Dropped out
All students (N=24,599)	18.8 (N=21,908)	13.7 (N=22,676)	6.0 (N=17,424)
Students with parent data (N=22,651)	18.0 (N=19,878)	12.9 (N=20,576)	5.6 (N=16,328)

The samples for these tables were further limited to students with nonmissing values on the mathematics proficiency variable, the reading proficiency variable, and the dropout variable. Because the software program used, PCCARP, has no provision for missing data (no missing value codes are allowed), three separate data sets were created—one for each dependent variable. That is, the estimates in column one of tables 2.1 through 8.2 were based on a data set containing students with nonmissing mathematics proficiency scores; the estimates in column two of tables 2.1 through 8.2 were based on students with nonmissing reading proficiency scores; and the estimates in column three of tables 2.1 through 8.2 were based on students with nonmissing dropout data. Furthermore, the base year student weight was used for the analysis of mathematics and reading proficiency scores while a special panel weight was used for the analysis of dropping out. This panel weight was developed for those students in both the base year and first follow-up surveys. Appendix B presents the unweighted sample sizes for these tables and the standard errors for tables 2.1 through 8.2.

Variables

Most of the variables used in this report are taken directly from the public use data file for the NELS:88 Base Year Survey. The exception is the dropout indicator variable, which is from the NELS:88 First Follow-Up Survey. The coding of this variable, along with the coding of the mathematics and reading proficiency variables, is shown in table A2.

Table A2—Outcome variables

Variable label	Variable name	Original coding	Recoding
Dropout status	FU1DROP2	1 = Not a dropout 2 = Dropout 3 = Stopout D = Deceased O = Out of country N = Nonexistent student X = Student not in 1FU 9 = Missing/unknown	0 = 1, 3 1 = 2 Missing = D to 9
Mathematics proficiency	BYTXPRO	1 = Below level 1 2 = Level 1, but not level 2 or 3 3 = Level 1 and 2, but not level 3 4 = Proficient at all 3 levels 5 = Did not fit model 9 = Missing	1 = 1 0 = 2, 3, 4 9 = 5, 9
Reading proficiency	BYTXPRO	1 = Below level 1 2 = Level 1, but not level 2 3 = Level 2 5 = Did not fit model 9 = Missing	1 = 1 0 = 2, 3 9 = 5, 9

Several variables in this analysis have been recoded from the original variables on the NELS:88 base year data set, while other variables in this analysis were composites of NELS:88 base year variables. These variables are described below in table A3. The socioeconomic status variable was a composite created by the National Center for Education Statistics, averaging the nonmissing values of five standardized components: father's and mother's educational levels, father's and mother's occupations, and family income. The parent questionnaire was the primary source of these components; for students without parent data (8.1 percent), student data was substituted.

Table A3—Composite and recoded variables

Variable label	Variable name	Original coding	Description
Family composition	NEWFCOMP	1 = Mother and father 2 = Mother and male guardian 3 = Father and female guardian 4 = Mother only 5 = Father only 6 = Other	Recoded so that 1 = 4,5 0 = 1,2,3,6
Overage	BIRTHMO BIRTHYR	Month of birth Year of birth	1 = If the student was born in 1972 or if the student was born in Jan.-Aug. of 1973. 0 = If the student was born in 1974 or 1975, or if the student was born in Sept.-Dec. 1973.

A number of school scale composites were also created for this analysis. The responses supplied by school administrators to several items were combined to create these scales. Schools were then ordered by their scale score and divided into three categories: high (top quartile), medium (from the 25th to the 75th percentile), or low (bottom quartile). The table below presents the created scales and the input variables for each. For each scale, factor and reliability analyses were performed to test the feasibility of combining the items into a scale. Cronbach's alpha statistic, shown in the table below, is a measure of the internal consistency of a scale and is based on the average correlation of items with the scale; it has a possible range of zero to one.

Table A4—Composite variables for school environment

Scale	Source and description of item		Alpha statistic
Parental involvement in PTA/school	byp59a	Belongs to PTA	.74
	byp59b	Attends PTA meetings	
	byp59c	Takes part in PTA activities	
	byp59d	Acts as volunteer at school	
School problems			.88
	bysc49a	Student tardiness	
	bysc49b	Student absenteeism	
	bysc49c	Student class cutting	
	bysc49d	Physical conflicts among students	
	bysc49e	Robbery or theft	
	bysc49f	Vandalism of school property	
	bysc49g	Student use of alcohol	
	bysc49h	Student use of illegal drugs	
	bysc49i	Student possession of weapons	
	bysc49j	Physical abuse of teachers	
	bysc49k	Verbal abuse of teachers	
Academic press			.71
	bysc47c:	Students place a priority on learning	
	bysc47e:	Teachers at this school encourage students to do their best	
	bysc47f:	Students are expected to do homework	
	bysc47o	Students face competition for grades	
Teacher engagement			.73
	bysc47a*	There is conflict between teachers and administrators	
	bysc47e	Teachers at this school encourage students to do their best	
	bysc47g	Teacher morale is high	
	bysc47h*	Teachers have negative attitude about students	
	bysc47i*	Teachers find it difficult to motivate students	
	bysc47m	Teachers take the time to respond to students' individual needs	
School security			.75
	bysc48a	Visitors required to sign in at the main office	
	bysc48b	Hall passes required to visit library	
	bysc48c	Hall passes required to visit lavatory	
	bysc48d	Hall passes required to visit office	
	bysc48e	Hall passes required to visit counselor	
	bysc48j	Certain forms of student dress forbidden	
	bysc48k	Students prohibited from leaving school or school grounds during school hours	

Table A4—Composite variables for school environment (continued)

Scale	Source and description of item		Alpha Statistic
Classroom discipline			.82
	bysc47b	Discipline is emphasized at this school	
	bysc47d	The classroom environment for students is structured	
	bysc47f	Students are expected to do homework	
	bysc47j	The school day for students is structured	
	bysc47k	Deviation by students from school rules is not tolerated	

*These items were reverse-coded for consistency of scaling.

Methodology

The statistics reported in tables 1.2 and tables 2.1, 3.1, 4.1 and so on through 8.1 in subsequent chapters are the simple odds ratios for each comparison listed. For example, the odds ratio for math proficiency comparing males to females is 0.81.

This ratio can be calculated in the following manner:

1. The proportion of males below basic proficiency = 0.2045; odds = 0.2045/(1-0.2045) = 0.257. The proportion of females below basic proficiency = 0.1716; odds = 0.1716/(1-0.1716) = 0.207.

2. The odds ratio of females vs. males = 0.207/0.257 = 0.805.

In simple terms this means that being female rather than male decreases a student's odds of being below basic proficiency in mathematics by a factor of 0.81—or, in other words, females are about 19 percent less likely to drop out than are males.

One can also use logistic regression to calculate these odds ratios. The logistic model is generally written in terms of the odds in the following manner:

$$\log\left(\frac{\text{Prob(event)}}{\text{Prob(no event)}}\right) = B_0 + B_1X_1 + \ldots + B_pX_p$$

or alternatively:

$$\frac{\text{Prob(event)}}{\text{Prob(no event)}} = e^{B_0 + B_1X_1 + \ldots + B_pX_p}$$

For example, using logistic regression one can regress math proficiency (coded 1,0) on sex (coded 1,0). This model can be written as

$$\frac{\text{Prob(below basic proficiency)}}{\text{Prob(above basic proficiency)}} = e^{B_0 + B\text{sex}}$$

Fitting this model with PCCARP, a logistic regression program that takes into account the complex sampling design of NELS:88,[46] results in

Variable	B	S.E.	Wald statistic (t-test)	Sig.
Constant	-1.359	0.037	36.26	< 0.001
Sex	-0.216	0.043	5.02	< 0.001

The odds ratio for the comparison of females to males for math proficiency is calculated by

$$\hat{\psi} = e^{-0.216} = 0.805,$$

or the same odds ratio calculated above. The significance of this odds ratio is identical to the significance of the t-test for the B coefficient upon which it is based.

Obviously, using logistic regression to calculate these simple odds ratios is not an efficient procedure. However, using logistic regression, one can also calculate the odds ratios for some comparison *controlling for other variables*. For example, in table 1.3, the model has been expanded to be

$$\frac{\text{Prob(below basic prof.)}}{\text{Prob(above basic prof.)}} = e^{B_0 + B\text{sex} + B\text{Asian} + B\text{Hispc} + B\text{Black} + B\text{Am. Ind.} + B\text{Low ses} + B\text{High ses}},$$

where B_{Asian}, B_{Hisp}, etc., and $B_{\text{Low ses}}$ and $B_{\text{High ses}}$ are dummy-coded variables with whites and middle SES as reference groups, respectively. The results of this model are

[46]PCCARP is a descendent of the mainframe computer program SUPER CARP based on the work of Wayne Fuller and his colleagues at Iowa State University. PCCARP uses Taylor linearization methods for calculating sampling events for complex survey samples.

Variable	B	S.E.	Wald statistic (t-test)	Sig.
Constant	-1.523	0.0459	33.17	<0.001
Sex	-0.256	0.0432	5.93	<0.001
Race				
Asian vs. white	-0.170	0.1127	1.51	>0.05
Hispanic vs. white	0.470	0.0695	6.77	<0.001
Black vs. white	0.572	0.0653	8.76	<0.001
Native Am. vs. white	0.705	0.1518	4.65	<0.001
SES				
Low vs. middle	0.519	0.0452	11.47	<0.001
High vs. middle	-0.707	0.0618	11.45	<0.001

The adjusted odds ratio for the male vs. female comparison is now

$$\widehat{\psi} = e^{-0.256} = 0.774$$

or in other words, adjusting for race and socioeconomic status, females are 33 percent less likely than males to perform below the basic proficiency level in mathematics.

Appendix B

Sample Sizes, Percentage Tables, and Standard Error Tables

Table B2.1—Sample sizes and standard errors for table 2.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Unweighted sample size	21,908	22,676	17,424
Total	0.45	0.34	0.48
Sex			
Male	0.61	0.45	0.69
Female	0.51	0.41	0.59
Race–ethnicity†			
Asian	1.24	1.21	1.08
Hispanic	1.19	0.93	1.02
Black	1.14	1.01	1.95
White	0.47	0.31	0.52
Native American	3.30	4.22	2.83
Socioeconomic status			
Low	0.83	0.79	1.29
Middle	0.72	0.56	0.48
High	0.42	0.34	0.58

† Not shown separately are persons whose race–ethnicity is unknown (approximately 2 percent of the unweighted sample).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B2.2—Standard errors for table 2.2

Variable	Below basic mathematics	Below basic reading	Dropped out
Sex			
Female vs. male	0.04	0.05	0.15
Race–ethnicity†			
Asian vs. white	0.11	0.10	0.41
Hispanic vs. white	0.07	0.06	0.17
Black vs. white	0.06	0.06	0.24
Native American vs. white	0.16	0.21	0.31
Socioeconomic status			
Low vs. middle	0.04	0.05	0.17
High vs. middle	0.06	0.07	0.42

† Not shown separately are persons whose race–ethnicity is unknown (approximately 2 percent of the unweighted sample).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B2.3—Standard errors for table 2.3

Variable	Below basic mathematics	Below basic reading	Dropped out
Sex			
Female vs. male	0.04	0.05	0.16
Race–ethnicity†			
Asian vs. white	0.11	0.10	0.42
Hispanic vs. white	0.07	0.06	0.19
Black vs. white	0.07	0.07	0.30
Native American vs. white	0.15	0.20	0.29
Socioeconomic status			
Low vs. middle	0.05	0.05	0.18
High vs. middle	0.06	0.07	0.44

† Not shown separately are persons whose race–ethnicity is unknown (approximately 2 percent of the unweighted sample).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B3.1—Percentages upon which the odds ratios of tables 3.1 and 3.2 are based

Variable	Below basic mathematics	Below basic reading	Dropped out
Total	18.0	12.9	5.6
Student is overage for grade			
No	14.9	10.2	2.3
Yes	33.4	26.5	21.2
Family composition			
Two parents/guardians	17.6	12.6	5.0
Single parent	26.1	18.4	14.7
Family size			
2–3 people	20.1	13.2	8.5
4–5 people	16.3	12.0	4.2
6–7 people	20.7	14.8	6.1
8 or more people	24.7	19.9	10.8
Number of older sibling dropouts			
None	16.9	12.2	4.5
1	23.2	16.3	10.5
2	26.9	17.2	14.5
3 or more	28.1	22.5	16.3
Changed schools			
Not at all	16.6	11.2	2.8
Once	16.7	12.9	4.8
Twice	20.6	16.9	6.6
Three times	22.4	15.8	8.0
Four times	21.0	14.5	10.3
Five+ times	18.9	12.8	20.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B3.2—Sample sizes and standard errors for table B3.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Unweighted sample size	19,879	20,576	16,079
Total	0.45	0.33	0.49
Student is overage for grade			
No	0.42	0.30	0.41
Yes	1.03	0.90	1.73
Family composition			
Two parents/guardians	0.45	0.33	0.45
Single parent	1.60	1.27	3.66
Family size			
2–3 people	0.80	0.66	1.59
4–5 people	0.50	0.36	0.53
6–7 people	0.89	0.73	0.74
8 or more people	1.71	1.74	2.59
Number of older sibling dropouts			
None	0.45	0.32	0.53
1	1.14	0.98	1.08
2	1.87	1.69	3.09
3 or more	2.74	3.12	3.17
Changed schools			
Not at all	0.59	0.44	0.30
Once	0.70	0.58	0.98
Twice	1.02	0.92	1.03
Three times	1.10	0.91	1.24
Four times	1.33	1.18	3.43
Five+ times	1.25	1.03	4.77

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B3.3—Standard errors for table 3.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is overage for grade			
Yes vs. no	0.05	0.05	0.20
Family composition			
Single parent vs. two parents	0.08	0.09	0.30
Family size			
4–5 people vs. 2–3 people	0.06	0.06	0.24
6–7 people vs. 2–3 people	0.07	0.08	0.24
8 or more people vs. 2–3 people	0.10	0.12	0.34
Number of older sibling dropouts			
1 vs. none	0.06	0.07	0.16
2 or more vs. none	0.10	0.12	0.27
Changed schools			
Once vs. not at all	0.06	0.06	0.24
Twice vs. not at all	0.07	0.07	0.19
Three times vs. not at all	0.07	0.08	0.20
Four times vs. not at all	0.08	0.10	0.39
Five+ times vs. not at all	0.09	0.10	0.30

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B3.4—Standard errors for table 3.2

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is overage for grade			
Yes vs. no	0.06	0.06	0.26
Family composition			
Single parent vs. two parents	0.09	0.09	0.32
Family size			
4–5 people vs. 2–3 people	0.06	0.06	0.25
6–7 people vs. 2–3 people	0.07	0.08	0.25
8 or more people vs. 2–3 people	0.11	0.12	0.36
Number older sibling dropouts			
1 vs. none	0.06	0.07	0.16
2 or more vs. none	0.10	0.13	0.27
Changed schools			
Once vs. not at all	0.06	0.06	0.23
Twice vs. not at all	0.07	0.08	0.20
Three times vs. not at all	0.07	0.08	0.20
Four times vs. not at all	0.09	0.11	0.43
Five+ times vs. not at all	0.09	0.10	0.30

SOURCE: U.S. Department of Education. National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B4.1—Percentages upon which the odds ratios of tables 4.1 and 4.2 are based

Variable	Below basic mathematics	Below basic reading	Dropped out
Total	18.0	12.9	5.6
Parental involvement in PTA/school			
Low	19.8	14.2	6.9
Medium	14.8	10.6	3.2
High	12.2	8.9	1.2
Parent talks about school with student			
Not at all	30.2	22.0	35.9
Rarely	24.5	18.7	11.1
Occasionally	20.5	15.6	7.6
Regularly	17.2	12.1	4.6
Parent talks about high school plans with student			
Not at all	25.2	16.5	19.6
Rarely	19.4	15.5	6.8
Occasionally	17.1	12.5	5.1
Regularly	18.4	12.8	5.2
Parent talks about postsecondary education plans with student			
Not at all	28.1	19.1	19.5
Rarely	19.9	15.3	7.8
Occasionally	16.8	12.5	4.3
Regularly	18.2	12.4	5.3
Parent's educational expectations for student			
Less than HS diploma	51.0	32.0	54.5
GED/HS diploma	28.8	15.1	60.2
Vocational education	30.3	22.1	12.1
Some college	21.4	16.0	6.9
4-year degree	12.9	8.8	2.1
Advanced degree	8.4	6.3	1.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B4.2—Sample sizes and standard errors for table B4.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Unweighted sample size	19,879	20,576	16,079
Total	0.45	0.33	0.49
Parental involvement in PTA/school			
Low	0.54	0.39	0.66
Medium	0.67	0.52	0.80
High	0.93	0.81	0.35
Parent talks about school with student			
Not at all	4.38	4.00	11.67
Rarely	2.42	2.28	2.72
Occasionally	0.86	0.71	0.81
Regularly	0.47	0.34	0.54
Parent talks about high school plans with student			
Not at all	2.31	2.12	5.69
Rarely	1.19	1.10	1.23
Occasionally	0.54	0.42	0.82
Regularly	0.59	0.45	0.57
Parent talks about postsecondary education plans with student			
Not at all	1.93	1.66	3.86
Rarely	1.07	0.94	2.64
Occasionally	0.51	0.39	0.51
Regularly	0.62	0.47	0.71
Parent's educational expectations for student			
Less than HS diploma	5.86	5.26	6.51
GED/HS diploma	8.65	6.44	10.79
Vocational education	0.81	0.66	1.28
Some college	0.92	0.77	1.61
4-year degree	0.51	0.39	0.50
Advanced degree	0.55	0.44	0.32

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B4.3—Standard errors for table 4.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Parental involvement in PTA/school			
Low vs. medium	0.06	0.06	0.28
High vs. medium	0.10	0.11	0.39
Parent talks about school with student			
Not at all vs. regularly	0.21	0.24	0.52
Rarely vs. regularly	0.13	0.15	0.30
Occasionally vs. regularly	0.05	0.06	0.16
Parent talks about high school plans with student			
Not at all vs. regularly	0.13	0.16	0.38
Rarely vs. regularly	0.08	0.09	0.23
Occasionally vs. regularly	0.05	0.05	0.20
Parent talks about postsecondary education plans with student			
Not at all vs. regularly	0.10	0.12	0.28
Rarely vs. regularly	0.07	0.08	0.39
Occasionally vs. regularly	0.04	0.05	0.19
Parent's educational expectations for student			
Less than HS diploma vs. some college	0.24	0.25	0.37
GED/HS diploma vs. some college	0.43	0.51	0.52
Vocational education vs. some college	0.06	0.06	0.28
4-year degree vs. some college	0.07	0.07	0.35
Advanced degree vs. some college	0.09	0.09	0.34

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B4.4—Standard errors for table 4.2

Variable	Below basic mathematics	Below basic reading	Dropped out
Parental involvement in PTA/school			
Low vs. medium	0.06	0.06	0.25
High vs. medium	0.10	0.11	0.42
Parent talks about school with student			
Not at all vs. regularly	0.23	0.26	0.46
Rarely vs. regularly	0.13	0.16	0.22
Occasionally vs. regularly	0.06	0.06	0.19
Parent talks about high school plans with student			
Not at all vs. regularly	0.13	0.16	0.70
Rarely vs. regularly	0.09	0.09	0.29
Occasionally vs. regularly	0.05	0.05	0.16
Parent talks about postsecondary education plans with student			
Not at all vs. regularly	0.10	0.12	0.32
Rarely vs. regularly	0.08	0.08	0.36
Occasionally vs. regularly	0.05	0.05	0.17
Parent's educational expectations for student			
Less than HS diploma vs. some college	0.26	0.26	0.38
GED/HS diploma vs. some college	0.42	0.54	0.50
Vocational education vs. some college	0.06	0.07	0.28
4-year degree vs. some college	0.07	0.07	0.32
Advanced degree vs. some college	0.09	0.10	0.37

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B5.1—Percentages upon which the odds ratios of tables 5.1 and 5.2 are based

Variable	Below basic mathematics	Below basic reading	Dropped out
Total	18.0	12.9	5.6
Repeated any grades K through 4			
Yes	33.3	26.7	14.3
No	15.7	10.8	4.2
Repeated any grades 5 through 8			
Yes	33.8	26.1	18.5
No	14.4	9.9	2.5
English grades since 6th grade			
Mostly As	11.2	7.5	2.5
Mostly Bs	16.5	12.2	3.5
Mostly Cs	25.4	18.2	9.1
Mostly Ds	33.6	24.6	20.4
Mostly below D	42.0	31.1	13.1
Math grades since 6th grade			
Mostly As	10.1	9.2	2.6
Mostly Bs	16.0	11.9	4.0
Mostly Cs	25.8	16.3	7.1
Mostly Ds	36.1	21.8	19.1
Mostly below D	45.4	28.0	21.5
Hours of homework per week			
None	37.0	23.1	23.7
.5 to < 3 hours	20.6	14.5	6.1
3 to < 5.5 hours	18.3	12.8	5.2
5.5 hours to < 10.5 hours	14.3	12.1	4.2
More than 10.5 hours	12.1	8.5	2.8
Has learning problem			
Yes	40.9	32.2	14.3
No	16.4	11.6	5.0
Has emotional problem			
Yes	31.8	21.4	23.1
No	17.6	12.7	4.9
In special education			
Yes	51.2	40.5	12.0
No	16.6	11.8	5.3
Attends remedial English			
Yes	24.5	18.7	6.3
No	17.1	12.1	5.5

See footnote at end of table.

Table B5.1—Percentages upon which the odds ratios of tables 5.1 and 5.2 are based—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Mathematics class			
Remedial	45.3	31.7	16.7
Regular	21.4	14.7	6.5
Algebra	9.9	8.3	3.1
Student seen by others as:			
A very good student	13.1	10.1	3.5
A somewhat good student	19.2	13.7	5.1
Not at all a good student	32.1	20.5	16.9
How sure will graduate from HS:			
Very sure will graduate	15.4	10.9	3.6
Probably will graduate	29.3	21.8	11.4
Probably will not graduate	50.5	37.0	53.0
Postsecondary education plans			
Less than HS diploma	53.6	36.6	44.2
HS diploma only	32.4	24.7	13.4
Some college	26.0	18.9	7.9
4-year college	13.5	9.5	3.1
Postcollege	10.6	7.4	2.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B5.2—Sample sizes and standard errors for table B5.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Unweighted sample size	19,879	20,576	16,079
Total	0.45	0.33	0.49
Repeated any grades K through 4			
Yes	0.44	0.31	0.53
No	1.14	1.01	1.21
Repeated any grades 5 through 8			
Yes	0.41	0.30	0.44
No	1.01	0.86	1.52
English grades since 6th grade			
Mostly As	0.55	0.38	0.41
Mostly Bs	0.55	0.45	0.38
Mostly Cs	0.88	0.69	1.26
Mostly Ds	1.70	1.63	4.61
Mostly below D	2.85	2.63	3.11
Math grades since 6th grade			
Mostly As	0.51	0.43	0.31
Mostly Bs	0.58	0.46	0.45
Mostly Cs	0.84	0.65	0.95
Mostly Ds	1.60	1.27	4.82
Mostly below D	2.68	2.40	5.70
Hours of homework per week			
None	2.24	1.97	4.83
.5 to < 3 hours	0.69	0.56	0.73
3 to < 5.5 hours	0.63	0.48	0.86
5.5 hours to < 10.5 hours	0.68	0.61	1.12
More than 10.5 hours	0.79	0.58	0.60
Has learning problem			
Yes	0.44	0.32	0.50
No	1.59	1.46	2.49
Has emotional problem			
Yes	0.45	0.33	0.44
No	2.01	1.73	5.51
In special education			
Yes	0.44	0.32	0.61
No	2.03	1.92	0.12
Attends remedial English			
Yes	1.08	0.94	0.81
No	0.45	0.32	0.54

See footnote at end of table.

Table B5.2—Standard errors for table B5.1—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Mathematics class			
Remedial	2.49	2.15	3.31
Regular	0.55	0.42	0.69
Algebra	0.50	0.41	0.63
Student seen by others as:			
A very good student	0.57	0.47	0.64
A somewhat good student	0.53	0.40	0.44
Not at all a good student	1.32	1.16	3.52
How sure will graduate from HS:			
Very sure will graduate	0.43	0.31	0.41
Probably will graduate	0.99	0.88	1.84
Probably will not graduate	3.33	3.01	6.22
Postsecondary education plans			
Less than HS diploma	3.63	3.40	7.59
HS diploma only	1.25	1.07	1.18
Some college	0.78	0.71	0.94
4-year college	0.47	0.35	0.81
Postcollege	0.59	0.49	0.45

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B5.3—Standard errors for table 5.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Repeated any grades K through 4			
Yes vs. no	0.06	0.06	0.09
Repeated any grades 5 through 8			
Yes vs. no	0.05	0.05	0.10
English grades since 6th grade			
Mostly As vs. Cs	0.07	0.07	0.23
Mostly Bs vs. Cs	0.06	0.06	0.19
Mostly Ds vs. Cs	0.08	0.10	0.31
Mostly below D vs. Cs	0.12	0.13	0.31
Math grades since 6th grade			
Mostly As vs. Cs	0.06	0.07	0.19
Mostly Bs vs. Cs	0.05	0.06	0.18
Mostly Ds vs. Cs	0.08	0.08	0.34
Mostly below D vs. Cs	0.12	0.13	0.37
Hours of homework per week			
None vs. more than 10.5 hours	0.12	0.13	0.34
.5 to < 3 hours vs. more than 10.5 hours	0.08	0.08	0.23
3 to < 5.5 hours vs. more than 10.5 hours	0.08	0.08	0.28
5.5 to < 10.5 hours vs. more than 10.5 hours	0.09	0.09	0.35
Has learning problem			
Yes vs. no	0.07	0.07	0.23
Has emotional problem			
Yes vs. no	0.09	0.10	0.32
In special education			
Yes vs. no	0.08	0.08	0.19
Attends remedial English			
Yes vs. no	0.06	0.06	0.17
Mathematic class			
Remedial vs. regular	0.10	0.10	0.27
Algebra vs. regular	0.06	0.06	0.24

See footnote at end of table.

Table B5.3—Standard errors for table 5.1—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Student seen as by others as:			
A very good vs. a somewhat good student	0.05	0.05	0.20
Not at all a good student vs. a somewhat good student	0.06	0.08	0.26
How sure will graduate from HS:			
Very sure vs. probably sure	0.05	0.06	0.22
Probably will not vs. probably sure	0.14	0.13	0.30
Postsecondary education plans			
Less than HS diploma vs. HS diploma only	0.16	0.16	0.33
Some college vs. HS diploma only	0.07	0.07	0.17
4-year college vs. HS diploma only	0.07	0.07	0.29
Postcollege vs. HS diploma only	0.08	0.09	0.25

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B5.4—Standard errors for table 5.2

Variable	Below basic mathematics	Below basic reading	Dropped out
Repeated any grades K through 4			
Yes vs. no	0.06	0.06	0.17
Repeated any grades 5 through 8			
Yes vs. no	0.06	0.06	0.25
English grades since 6th grade			
Mostly As vs. Cs	0.07	0.07	0.26
Mostly Bs vs. Cs	0.06	0.06	0.21
Mostly Ds vs. Cs	0.09	0.10	0.32
Mostly below D vs. Cs	0.13	0.13	0.29
Math grades since 6th grade			
Mostly As vs. Cs	0.07	0.07	0.19
Mostly Bs vs. Cs	0.05	0.06	0.18
Mostly Ds vs. Cs	0.08	0.09	0.35
Mostly below D vs. Cs	0.12	0.13	0.43
Hours of homework per week			
None vs. more than 10.5 hours	0.13	0.14	0.41
.5 to < 3 hours vs. more than 10.5 hours	0.08	0.08	0.23
3 to < 5.5 hours vs. more than 10.5 hours	0.08	0.08	0.28
5.5 to < 10.5 hours vs. more than 10.5 hours	0.09	0.09	0.36
Has learning problem			
Yes vs. no	0.07	0.08	0.25
Has emotional problem			
Yes vs. no	0.10	0.11	0.39
In special education			
Yes vs. no	0.09	0.09	0.19
Attends remedial English			
Yes vs. no	0.06	0.06	0.18
Mathematics class			
Remedial vs. regular	0.11	0.11	0.27
Algebra vs. regular	0.06	0.06	0.22

See footnote at end of table.

Table B5.4—Standard errors for table 5.2—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Student seen by others as:			
A very good vs. a somewhat good student	0.05	0.06	0.22
Not at all a good student vs. a somewhat good student	0.07	0.08	0.26
How sure will graduate from HS:			
Very sure vs. probably sure	0.05	0.06	0.20
Probably will not vs. probably sure	0.14	0.14	0.39
Postsecondary education plans			
Less than HS diploma vs. HS diploma only	0.16	0.16	0.41
Some college vs. HS diploma only	0.07	0.08	0.17
4-year college vs. HS diploma only	0.07	0.07	0.33
Postcollege vs. HS diploma only	0.09	0.10	0.30

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B6.1—Percentages upon which the odds ratios of tables 6.1 and 6.2 are based

Variable	Below basic mathematics	Below basic reading	Dropped out
Total	18.0	12.9	5.6
Comes w/o pencil/paper			
Usually	34.7	25.2	14.9
Often	22.2	17.1	5.5
Seldom	14.9	9.8	4.8
Never	16.5	12.5	4.1
Comes w/o books			
Usually	43.1	31.4	16.3
Often	31.1	22.6	10.1
Seldom	14.7	9.7	5.2
Never	15.6	11.6	4.0
Comes w/o homework			
Usually	32.9	24.2	13.2
Often	23.2	15.6	9.1
Seldom	14.5	9.8	4.4
Never	14.9	11.7	2.8
Comes unprepared			
Usually	45.1	34.8	21.4
Often	28.5	19.9	9.8
Seldom	16.1	10.9	5.3
Never	15.1	11.9	2.8
Days missed last month			
None	16.2	12.1	3.4
1–2	16.9	12.0	4.2
3–4	22.3	15.5	9.4
5 or more	27.2	17.6	1.8
How often cuts class			
Seldom/never	16 7	12.2	4.8
Less than once/wk	28.7	18.4	10.9
Once/wk or more	42.1	28.2	24.4
Smoking habits			
Does not smoke	17.1	12.5	4.3
Smokes	31.0	19.3	25.3

See footnote at end of table.

Table B6.1—Percentages upon which the odds ratios of tables 6.1 and 6.2 are based—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Days tardy last month			
None	15.9	11.5	3.9
1 or 2	19.7	14.2	6.5
3 or 4	23.5	16.8	7.6
5 to 9	31.2	19.5	20.9
10 or more	38.2	28.1	22.1
Sent to office for misbehaving			
Never	13.7	10.1	2.7
Once or twice	24.7	17.8	9.4
More than twice	34.3	22.4	17.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B6.2—Sample sizes and standard errors for table B6.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Unweighted sample size	19,879	20,576	16,079
Total	0.45	0.33	0.49
Comes w/o pencil/paper			
Usually	1.49	1.24	3.36
Often	0.95	0.88	0.68
Seldom	0.48	0.34	0.62
Never	0.61	0.52	0.42
Comes without books			
Usually	2.18	2.00	4.30
Often	1.68	1.42	1.70
Seldom	0.56	0.40	0.88
Never	0.49	0.43	0.52
Comes without homework			
Usually	1.51	1.31	2.51
Often	0.99	0.83	2.15
Seldom	0.49	0.37	0.59
Never	0.66	0.59	0.43
Comes unprepared			
Usually	2.37	2.28	5.21
Often	1.23	1.02	2.33
Seldom	0.49	0.36	0.57
Never	0.56	0.49	0.38
Days missed last month			
None	0.53	0.42	0.69
1–2	0.58	0.51	0.46
3–4	1.08	0.83	1.69
5 or more	1.33	1.12	2.69
How often cuts class			
Seldom/never	0.43	0.32	0.48
Less than once/wk	1.58	1.18	1.75
Once/wk or more	2.86	2.51	6.49
Smoking habits			
Does not smoke	0.44	0.33	0.46
Smokes	1.56	1.25	2.86

See footnote at end of table.

Table B6.2—Standard errors for table B6.1—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
Days tardy last month			
None	0.45	0.36	0.51
1 or 2	0.77	0.57	0.69
3 or 4	1.43	1.19	1.28
5 to 9	2.48	2.11	7.53
10 or more	3.06	2.73	8.68
Sent to office for misbehaving			
Never	0.41	0.33	0.25
Once or twice	0.83	0.69	1.59
More than twice	1.36	1.11	2.35

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B6.3—Standard errors for table 6.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Comes without pencil/paper			
Usually vs. never	0.07	0.08	0.27
Often vs. never	0.07	0.07	0.16
Seldom vs. never	0.05	0.06	0.17
Comes without books			
Usually vs. never	0.09	0.10	0.16
Often vs. never	0.08	0.09	0.15
Seldom vs. never	0.05	0.06	0.11
Comes without homework			
Usually vs. never	0.07	0.09	0.16
Often vs. never	0.07	0.08	0.16
Seldom vs. never	0.06	0.07	0.13
Comes unprepared			
Usually vs. never	0.10	0.11	0.34
Often vs. never	0.07	0.08	0.30
Seldom vs. never	0.05	0.05	0.18
Days missed last month			
1–2 vs. none	0.05	0.06	0.23
3–4 vs. none	0.07	0.07	0.28
5 or more vs. none	0.07	0.08	0.28
How often cuts class			
Less than once/wk vs. never	0.08	0.08	0.20
Once/wk or more vs. never	0.12	0.12	0.37
Smoking habits			
Does not smoke vs. smokes	0.07	0.08	0.18
Days tardy last month			
1–2 vs. none	0.05	0.06	0.17
3–4 vs. none	0.08	0.09	0.21
5–10 vs. none	0.12	0.14	0.47
10 or more vs. none	0.13	0.14	0.52
Sent to office for misbehaving			
Once or twice vs. never	0.05	0.05	0.20
More than twice vs. never	0.06	0.07	0.18

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B6.4—Standard errors for table 6.2

Variable	Below basic mathematics	Below basic reading	Dropped out
Comes without pencil/paper			
Usually vs. never	0.07	0.08	0.27
Often vs. never	0.07	0.07	0.18
Seldom vs. never	0.05	0.06	0.18
Comes without books			
Usually vs. never	0.09	0.10	0.17
Often vs. never	0.09	0.09	0.16
Seldom vs. never	0.05	0.06	0.11
Comes without homework			
Usually vs. never	0.08	0.09	0.17
Often vs. never	0.07	0.08	0.16
Seldom vs. never	0.06	0.07	0.13
Comes unprepared			
Usually vs. never	0.10	0.12	0.39
Often vs. never	0.07	0.08	0.28
Seldom vs. never	0.05	0.06	0.18
Days missed last month			
1–2 vs. none	0.05	0.06	0.23
3–4 vs. none	0.07	0.07	0.28
5 or more vs. none	0.07	0.09	0.31
How often cuts class			
Less than once/wk vs. never	0.08	0.08	0.22
Once/wk or more vs. never	0.13	0.13	0.45
Smoking habits			
Does not smoke vs. smokes	0.08	0.09	0.24
Days tardy last month			
1–2 vs. none	0.05	0.06	0.17
3–4 vs. none	0.08	0.08	0.22
5–10 vs. none	0.12	0.16	0.56
10 or more vs. none	0.14	0.15	0.66
Sent to office for misbehaving			
Once or twice vs. never	0.05	0.06	0.22
More than twice vs. never	0.07	0.08	0.21

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B7.1—Percentages upon which the odds ratios of tables 7.1 and 7.2 are based

Variable	Below basic mathematics	Below basic reading	Dropped out
Total	18.0	12.9	5.6
Student is passive			
Yes	25.9	18.2	10.5
No	17.4	12.5	5.1
Student is frequently disruptive			
Yes	30.5	20.9	12.2
No	16.2	11.8	4.6
Student is inattentive			
Yes	32.0	21.3	12.6
No	14.5	10.8	3.7
Student performs below ability			
Yes	31.0	20.6	11.8
No	13.5	10.3	3.4
Student rarely completes homework			
Yes	33.5	22.2	14.0
No	14.3	10.7	3.4
Student is frequently tardy			
Yes	37.0	25.1	21.5
No	17.0	12.3	4.7
Student is frequently absent			
Yes	27.4	18.6	20.1
No	16.9	12.3	3.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B7.2—Sample sizes and standard errors for table B7.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Unweighted sample size	19,879	20,576	16,079
Total	0.45	0.33	0.49
Student is passive			
Yes	0.45	0.33	0.50
No	1.42	1.26	2.14
Student is frequently disruptive			
Yes	0.42	0.34	0.40
No	1.31	0.97	2.37
Student is inattentive			
Yes	0.40	0.32	0.37
No	1.02	0.77	1.67
Student performs below ability			
Yes	0.40	0.32	0.39
No	0.89	0.66	1.42
Student rarely completes homework			
Yes	0.40	0.32	0.36
No	1.02	0.75	1.71
Student is frequently tardy			
Yes	0.44	0.32	0.45
No	1.91	1.58	3.87
Student is frequently absent			
Yes	0.45	0.33	0.42
No	1.25	0.97	2.52

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B7.3—Standard errors for table 7.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is passive			
Yes vs. no	0.07	0.09	0.12
Student is frequently disruptive			
Yes vs. no	0.06	0.07	0.17
Student is inattentive			
Yes vs. no	0.05	0.05	0.09
Student performs below ability			
Yes vs. no	0.04	0.05	0.09
Student rarely completes homework			
Yes vs. no	0.05	0.05	0.09
Student is frequently tardy			
Yes vs. no	0.08	0.09	0.14
Student is frequently absent			
Yes vs. no	0.06	0.07	0.10

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B7.4—Standard errors for table 7.2

Variable	Below basic mathematics	Below basic reading	Dropped out
Student is passive			
Yes vs. no	0.07	0.09	0.28
Student is frequently disruptive			
Yes vs. no	0.06	0.07	0.23
Student is inattentive			
Yes vs. no	0.05	0.06	0.17
Student performs below ability			
Yes vs. no	0.05	0.05	0.17
Student rarely completes homework			
Yes vs. no	0.05	0.05	0.17
Student is frequently tardy			
Yes vs. no	0.08	0.09	0.28
Student is frequently absent			
Yes vs. no	0.07	0.07	0.21

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B8.1—Percentages upon which the odds ratios of tables 8.1 and 8.2 are based

Variable	Below basic mathematics	Below basic reading	Dropped out
Total	18.0	12.9	5.6
School size			
1–399	15.6	11.4	5.0
400–599	18.6	13.2	5.2
600–799	19.3	13.1	4.8
800–1,199	18.1	13.0	7.1
1,200+	20.0	16.0	6.2
School urbanicity			
Urban	20.1	15.7	6.9
Suburban	16.8	11.8	4.4
Rural	18.1	12.4	6.2
Percent minority in school			
0–5	14.2	10.6	3.3
6–20	16.1	9.8	6.1
21–40	18.1	13.3	5.5
41–60	22.9	16.0	5.2
61 or more	28.2	22.2	10.7
Percent on free or reduced price lunch program			
None	12.0	8.6	2.0
1–10 vs. 0	13.9	9.8	5.5
11–30 vs. 0	17.5	12.5	4.9
31–74 vs. 0	23.5	16.4	7.1
75+ vs. 0	31.6	25.7	12.9
School problems			
Low	9.2	7.5	0.5
Moderate	16.5	12.0	4.7
High	22.8	16.0	8.2
Teacher engagement			
Low	20.3	14.8	5.9
Moderate	17.6	12.7	5.6
High	14.4	9.4	4.4
Academic press			
Low	21.8	15.7	7.2
Moderate	19.0	13.1	6.0
High	13.3	10.4	3.3
School security			
Low	14.0	9.1	2.6
Moderate	17.4	12.5	5.8
High	19.2	14.0	6.1

See footnote at end of table.

Table B8.1—Percentages upon which the odds ratios of tables 8.1 and 8.2 are based—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
School discipline			
Low	19.8	14.7	6.3
Moderate	17.8	12.6	5.9
High	16.7	11.8	3.9
School reading level			
Low	29.3	21.2	8.2
Moderate	14.8	10.6	5.1
High	6.4	4.5	2.0
School math level			
Low	30.9	20.6	9.6
Moderate	14.9	11.0	4.8
High	7.0	6.7	1.6
School combined math and reading level			
Low	30.1	20.8	9.5
Moderate	14.8	10.8	4.6
High	6.5	5.6	1.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B8.2—Sample sizes and standard errors for table B8.1

Variable	Below basic mathematics	Below basic reading	Dropped out
Unweighted sample size	19,879	20,576	16,079
Total	0.45	0.33	0.49
School size			
1–399	0.91	0.64	1.26
400–599	0.83	0.67	0.80
600–799	1.01	0.75	0.66
800–1,199	1.08	0.65	1.25
1,200+	1.58	1.46	1.76
School urbanicity			
Urban	0.94	0.71	1.04
Suburban	0.61	0.49	0.64
Rural	0.89	0.55	0.98
Percent minority in school			
0–5	0.67	0.44	0.38
6–20	0.88	0.57	1.52
21–40	1.05	0.75	0.72
41–60	1.42	0.95	0.81
61 or more	1.29	1.08	1.64
Percent on free or reduced price lunch program			
None	1.03	0.74	0.67
1–10 vs. 0	0.71	0.55	1.28
11–30 vs. 0	0.72	0.53	0.46
31–74 vs. 0	1.08	0.73	1.22
75+ vs. 0	2.12	1.97	2.64
School problems			
Low	1.53	1.19	0.28
Moderate	0.50	0.39	0.54
High	1.01	6.60	1.13
Teacher engagement			
Low	0.90	0.68	0.67
Moderate	0.58	0.41	0.60
High	1.39	0.88	2.71
Academic press			
Low	1.00	0.82	0.82
Moderate	0.64	0.45	0.86
High	0.77	0.55	0.60

See footnote at end of table.

Table B8.2—Standard errors for table B8.1—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
School security			
Low	1.14	0.71	0.67
Moderate	0.77	0.61	1.16
High	0.64	0.45	0.60
School discipline			
Low	0.99	0.79	0.78
Moderate	0.59	0.40	0.77
High	1.02	0.74	0.75
School reading level			
Low	0.83	0.65	0.79
Moderate	0.47	0.32	0.75
High	0.46	0.37	0.92
School math level			
Low	0.83	0.68	0.96
Moderate	0.44	0.36	0.78
High	0.47	0.43	0.36
School combined math and reading level			
Low	0.81	0.66	0.93
Moderate	0.45	0.34	0.72
High	0.46	0.39	0.77

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B8.3—Standard errors for table 8.1

Variable	Below basic mathematics	Below basic reading	Dropped out
School size			
1–399 vs. 600–799	0.10	0.09	0.30
400–599 vs. 600–799	0.09	0.09	0.22
800–1,199 vs. 600–799	0.10	0.09	0.24
1,200+ vs. 600–799	0.12	0.13	0.34
School urbanicity			
Urban vs. suburban	0.07	0.07	0.23
Rural vs. suburban	0.07	0.07	0.23
Percent minority in school			
6–20 vs. 0–5	0.09	0.08	0.29
21–40 vs. 0–5	0.09	0.08	0.19
41–60 vs. 0–5	0.10	0.09	0.20
61+ vs. 0–5	0.08	0.08	0.21
Percent on free or reduced price lunch program			
1–10 vs. 0	0.11	0.11	0.43
11–30 vs. 0	0.11	0.11	0.36
31–74 vs. 0	0.11	0.11	0.39
75+ vs. 0	0.14	0.14	0.42
School problems			
Low vs. moderate	0.19	0.18	0.57
High vs. moderate	0.07	0.06	0.19
Teacher engagement			
Low vs. moderate	0.07	0.07	0.17
High vs. moderate	0.12	0.11	0.66
Academic press			
Low vs. moderate	0.07	0.07	0.20
High vs. moderate	0.08	0.07	0.24
School security			
Low vs. moderate	0.11	0.10	0.35
High vs. moderate	0.07	0.07	0.24

See footnote at end of table.

Table B8.3—Standard errors for table 8.1—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
School discipline			
Low vs. moderate	0.07	0.07	0.19
High vs. moderate	0.08	0.08	0.25
School reading level			
Low vs. moderate	0.05	0.05	0.19
High vs. moderate	0.08	0.09	0.50
School math level			
Low vs. moderate	0.05	0.06	0.20
High vs. moderate	0.08	0.08	0.29
School combined math and reading level			
Low vs. moderate	0.05	0.05	0.20
High vs. moderate	0.08	0.08	0.50

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

Table B8.4—Standard errors for table 8.2

Variable	Below basic mathematics	Below basic reading	Dropped out
School size			
1–399 vs. 600–799	0.09	0.08	0.27
400–599 vs. 600–799	0.08	0.08	0.22
800–1,199 vs. 600–799	0.09	0.08	0.24
1,200+ vs. 600–799	0.10	0.10	0.34
School urbanicity			
Urban vs. suburban	0.07	0.06	0.22
Rural vs. suburban	0.07	0.07	0.21
Percent minority in school			
6–20 vs. 0–5	0.08	0.08	0.29
21–40 vs. 0–5	0.09	0.08	0.20
41–60 vs. 0–5	0.10	0.09	0.24
61+ vs. 0–5	0.10	0.09	0.27
Percent on free or reduced price lunch program			
1–10 vs. 0	0.11	0.11	0.43
11–30 vs. 0	0.10	0.10	0.36
31–74 vs. 0	0.12	0.11	0.39
75+ vs. 0	0.14	0.13	0.44
School problems			
Low vs. moderate	0.19	0.17	0.55
High vs. moderate	0.06	0.06	0.19
Teacher engagement			
Low vs. moderate	0.06	0.06	0.16
High vs. moderate	0.10	0.10	0.62
Academic press			
Low vs. moderate	0.07	0.07	0.19
High vs. moderate	0.07	0.07	0.24
School security			
Low vs. moderate	0.10	0.09	0.33
High vs. moderate	0.06	0.06	0.23

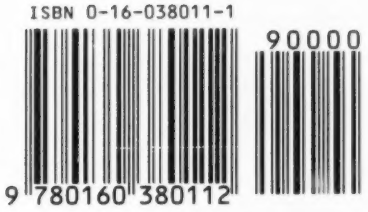
See footnote at end of table.

Table B8.4—Standard errors for table 8.2—Continued

Variable	Below basic mathematics	Below basic reading	Dropped out
School discipline			
Low vs. moderate	0.07	0.07	0.19
High vs. moderate	0.08	0.07	0.25
School reading level			
Low vs. moderate	0.06	0.06	0.20
High vs. moderate	0.09	0.10	0.53
School math level			
Low vs. moderate	0.06	0.06	0.21
High vs. moderate	0.09	0.08	0.29
School combined math and reading level			
Low vs. moderate	0.06	0.06	0.20
High vs. moderate	0.09	0.09	0.54

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year and First Follow-Up" surveys.

ISBN 0-16-038011-1



United States
Department of Education
Washington, D.C. 20208–5651

Official Business
Penalty for Private Use, $300

Postage and Fees Paid
U.S. Department of Education
Permit No. G–17

FOURTH CLASS BOOK RATE